FIG. 1

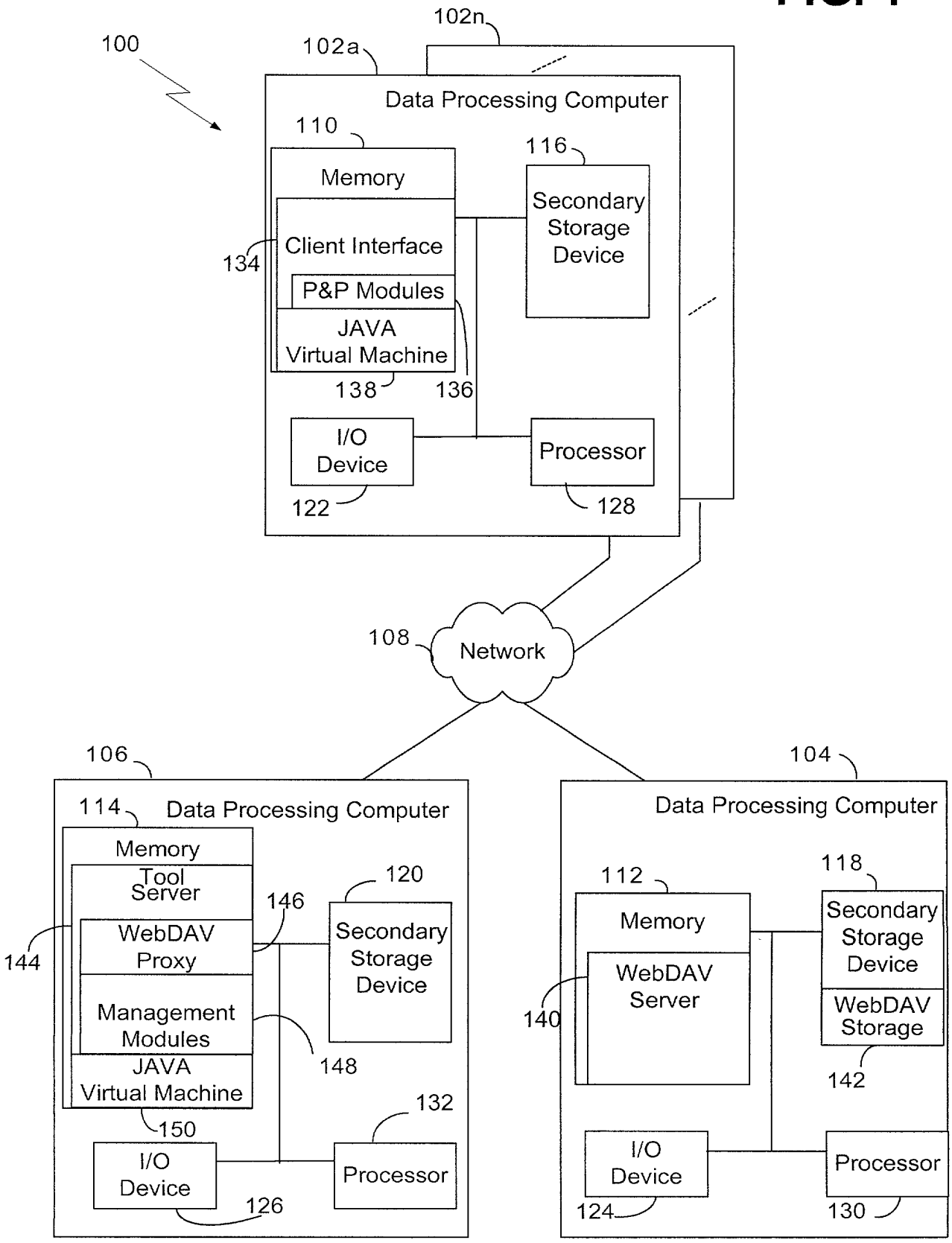
100
102n
102a
Data Processing Computer
110
Memory
116
Secondary Storage Device
134
Client Interface
P&P Modules
JAVA Virtual Machine
138
136
I/O Device
122
Processor
128
108
Network
106
114
Data Processing Computer
Memory
Tool Server
120
146
144
WebDAV Proxy
Secondary Storage Device
Management Modules
148
JAVA Virtual Machine
150
132
I/O Device
Processor
126
104
Data Processing Computer
112
118
Memory
Secondary Storage Device
WebDAV Server
140
WebDAV Storage
142
I/O Device
Processor
124
130

FIG. 2

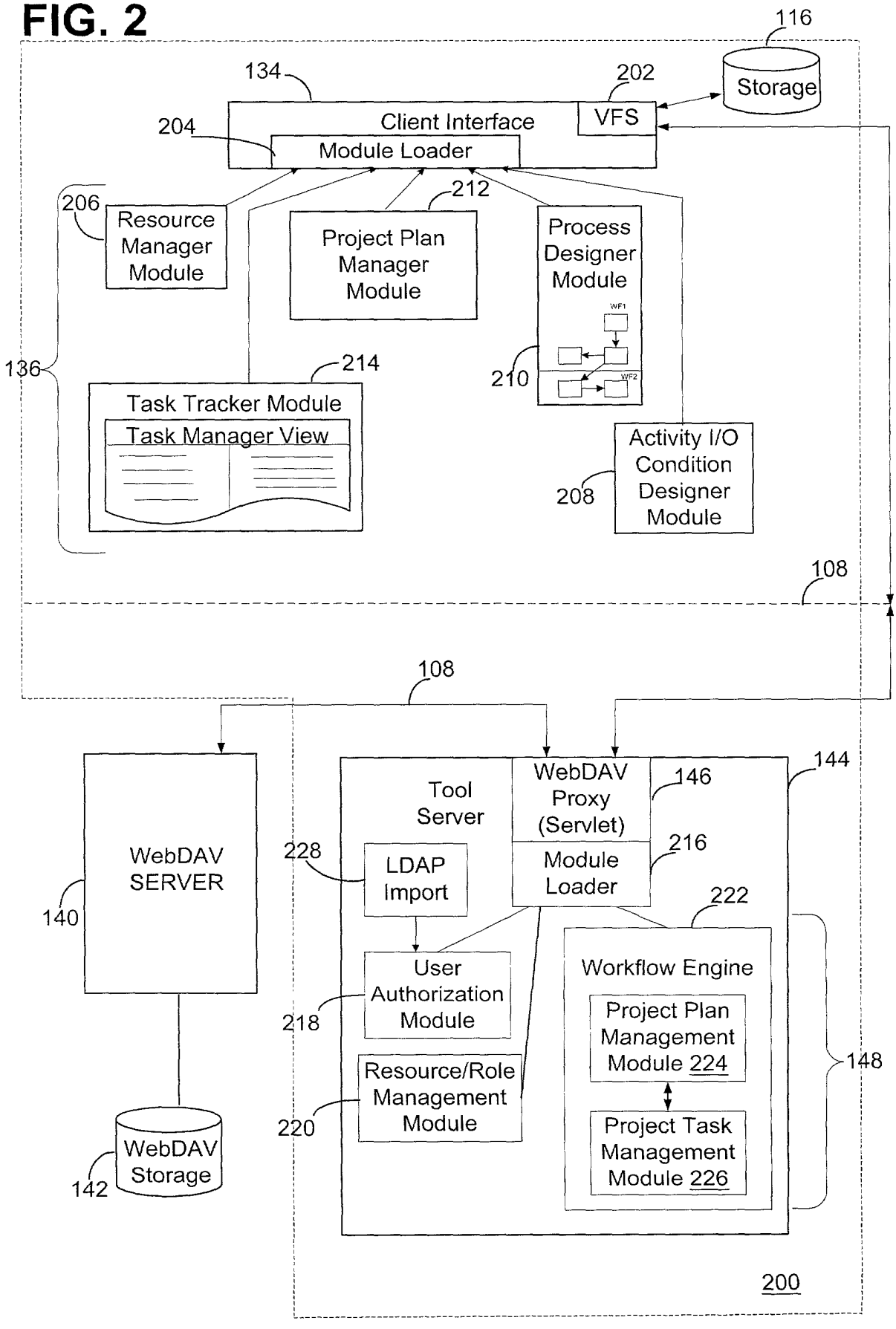
116
Storage
134
202
Client Interface
VFS
204
Module Loader
206
212
Resource Manager Module
Project Plan Manager Module
Process Designer Module
WF1
WF2
136
214
210
Task Tracker Module
Task Manager View
Activity I/O Condition Designer Module
208
108
108
WebDAV SERVER
140
Tool Server
WebDAV Proxy (Servlet)
146
144
228
LDAP Import
Module Loader
216
222
User Authorization Module
218
Workflow Engine
Project Plan Management Module 224
Resource/Role Management Module
220
148
Project Task Management Module 226
WebDAV Storage
142
200

FIG. 3

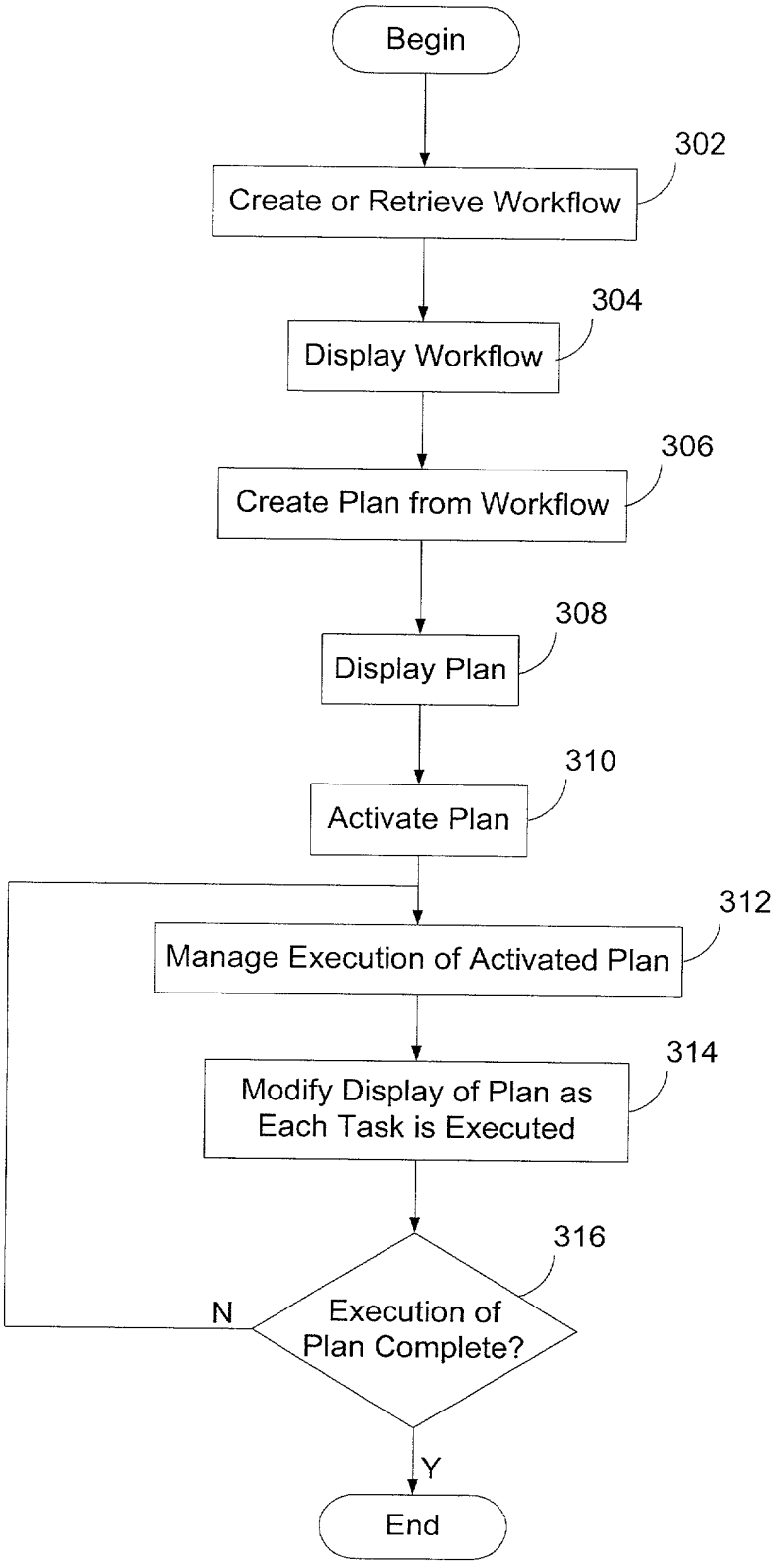
Begin
302
Create or Retrieve Workflow
304
Display Workflow
306
Create Plan from Workflow
308
Display Plan
310
Activate Plan
312
Manage Execution of Activated Plan
314
Modify Display of Plan as Each Task is Executed
316
Execution of Plan Complete?
N
Y
End

FIG. 4

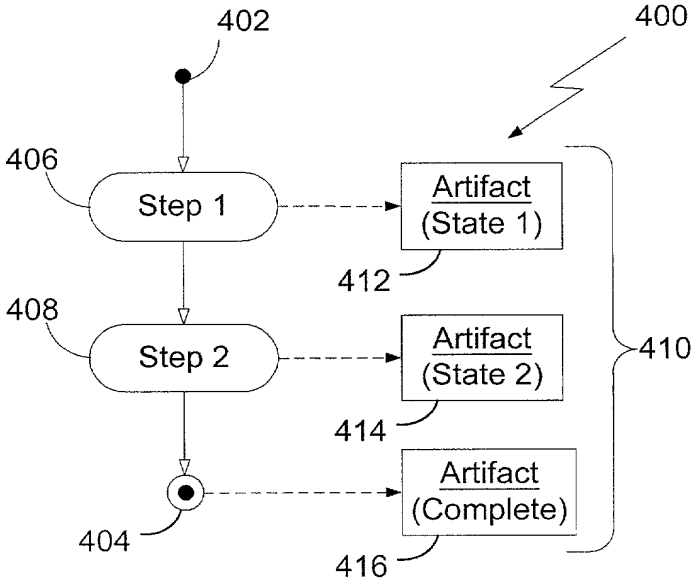
402
400
406
Step 1
Artifact
(State 1)
412
408
Step 2
Artifact
(State 2)
410
414
Artifact
(Complete)
404
416

FIG. 5

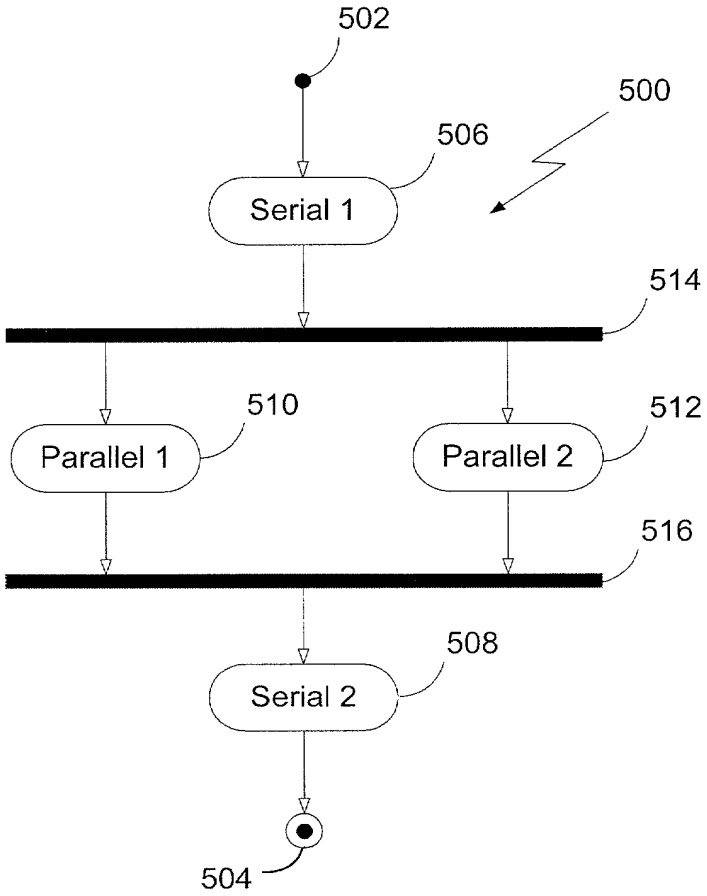
502
500
506
Serial 1
514
510
512
Parallel 1
Parallel 2
516
508
Serial 2
504

FIG. 6

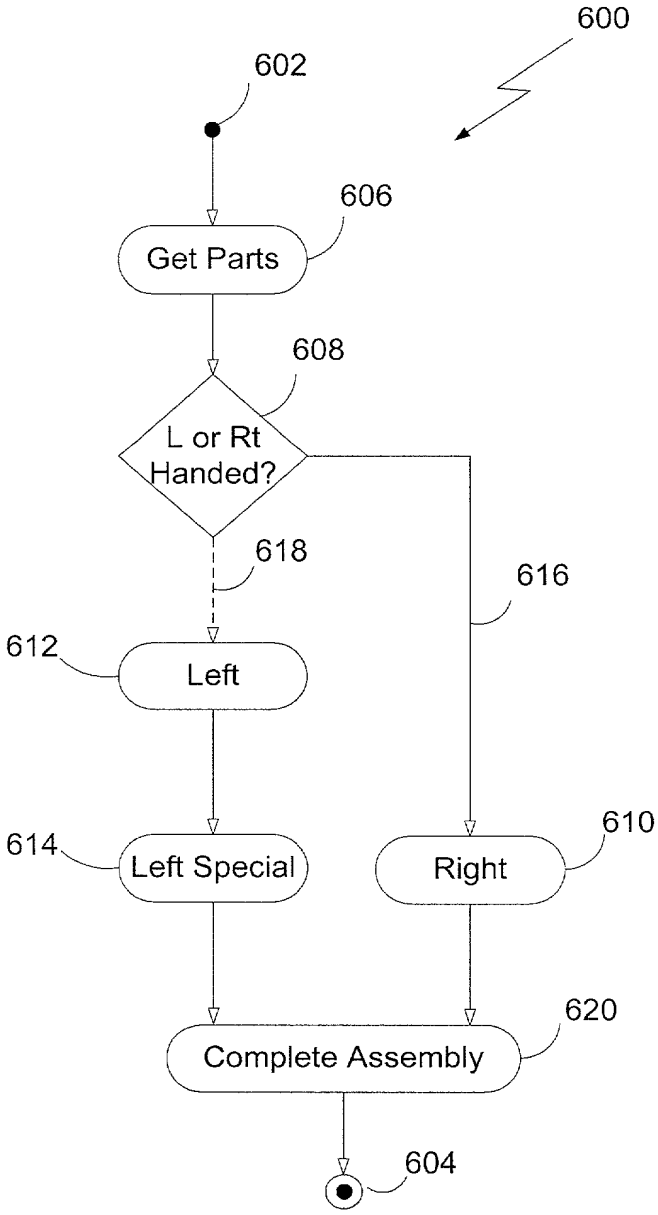
600
602
606
Get Parts
608
L or Rt Handed?
618
616
612
Left
614
Left Special
Right
610
620
Complete Assembly
604

FIG. 7

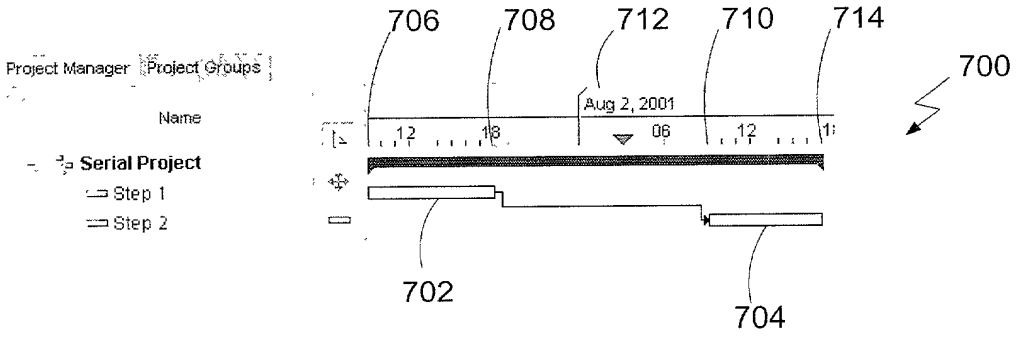

FIG. 8

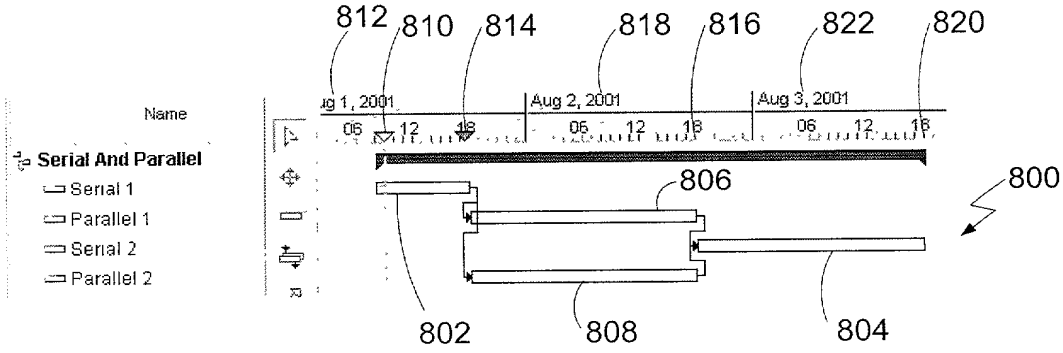

FIG. 9

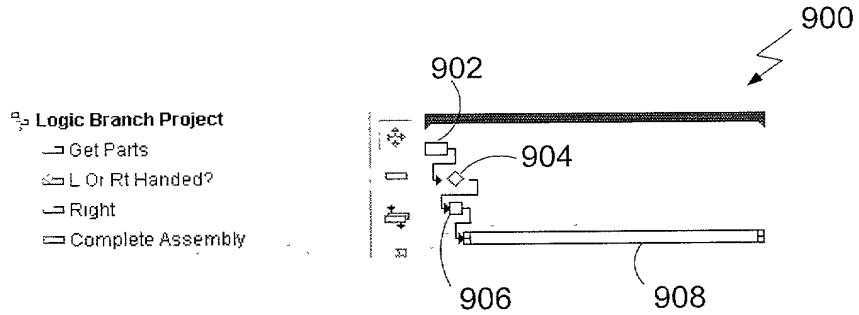

FIG. 10

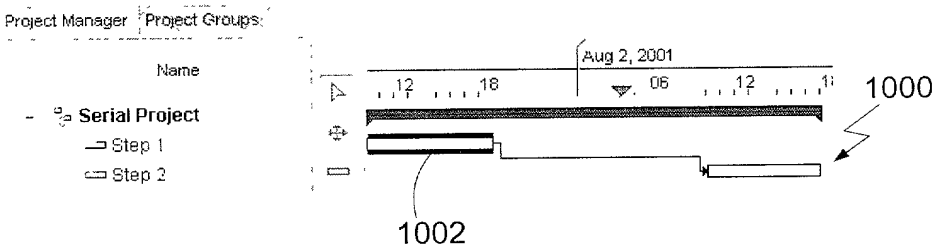

FIG. 11

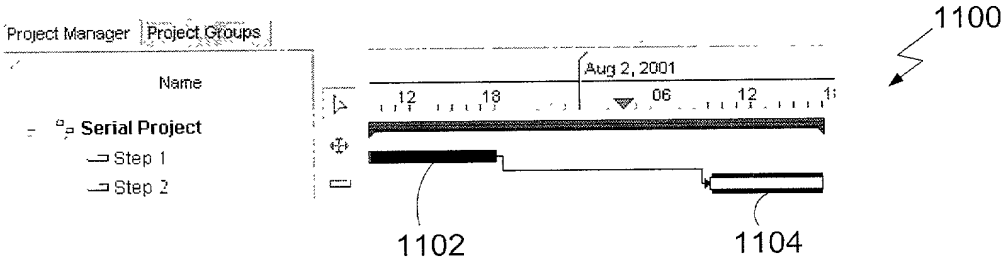

FIG. 12

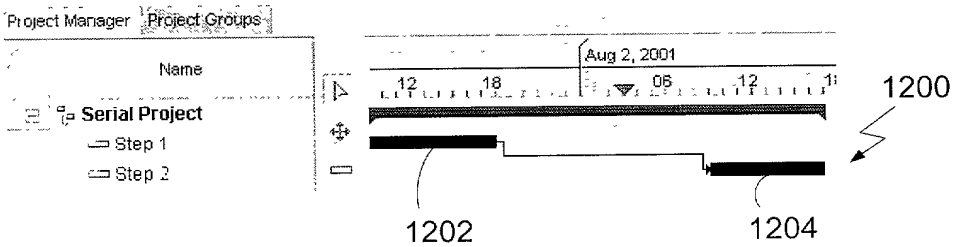

FIG. 13

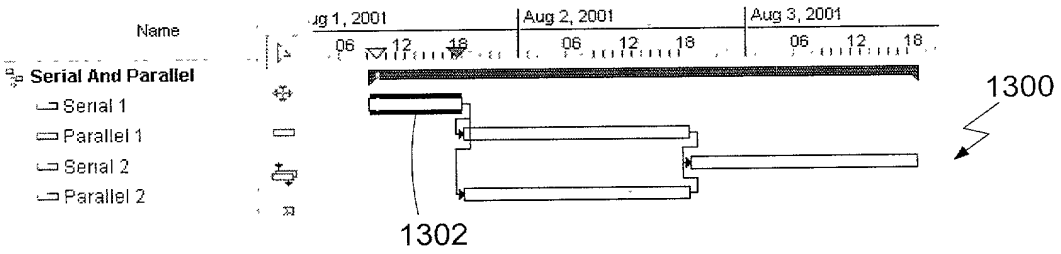

FIG. 14

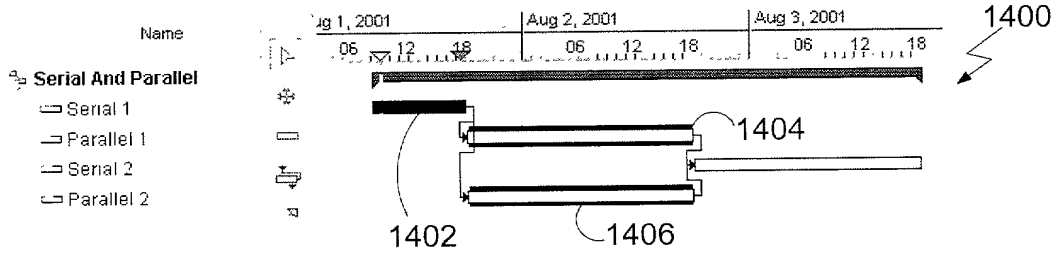

FIG. 15

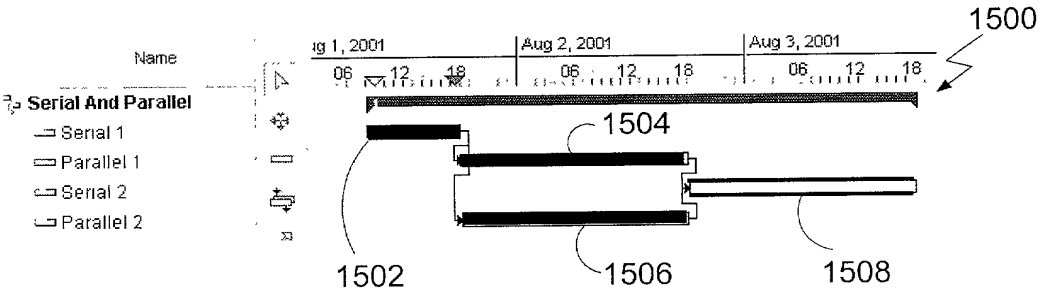

FIG. 16

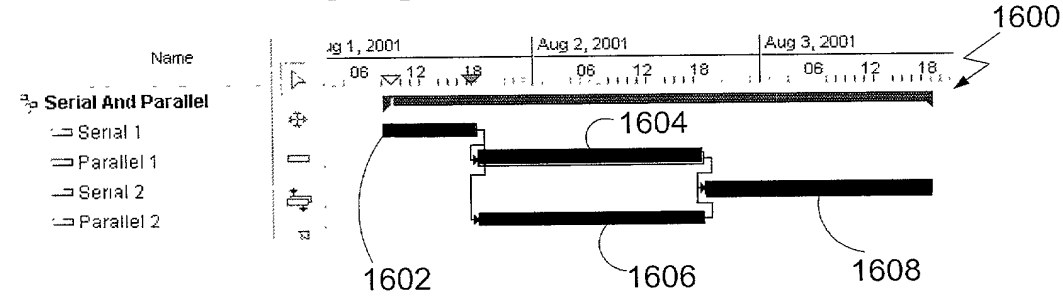

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FIG. 17

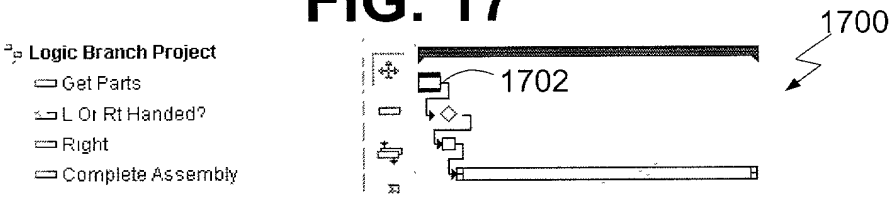


FIG. 18

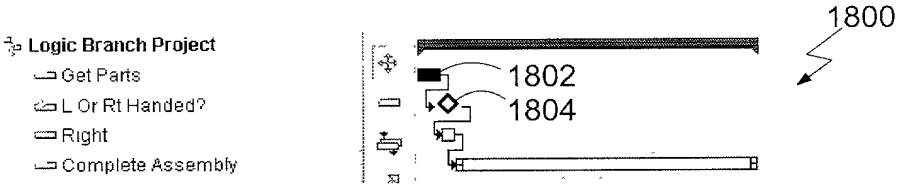


FIG. 19

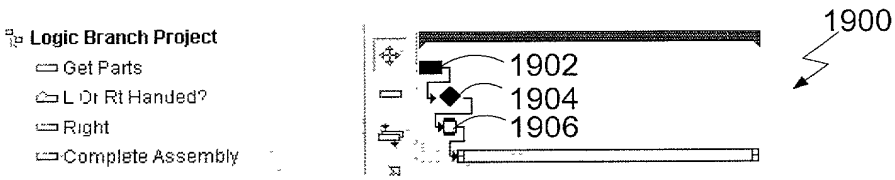


FIG. 20

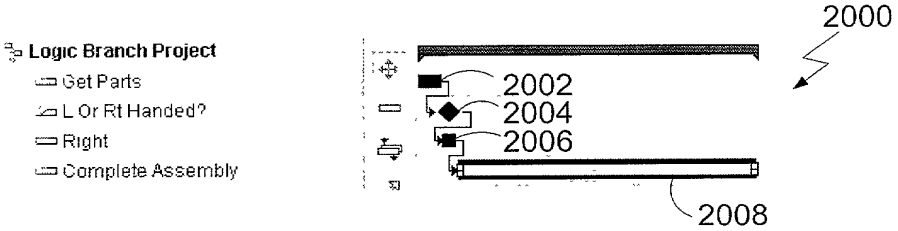


FIG. 21

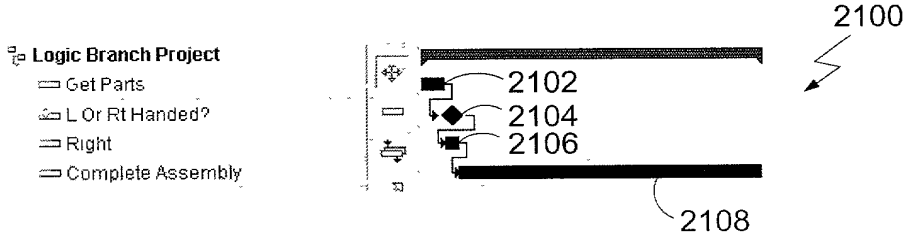


FIG. 22

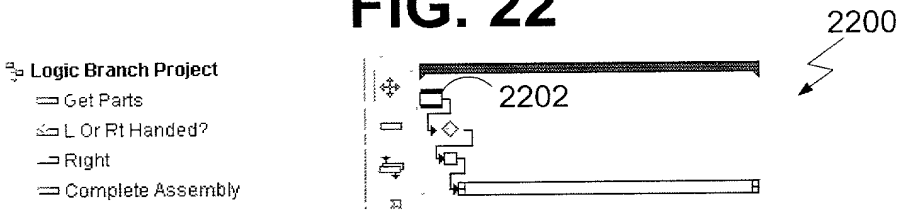


FIG. 23

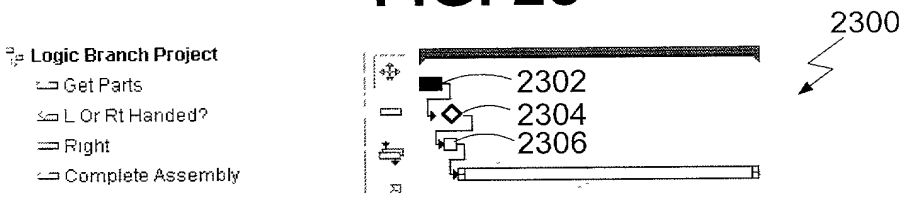


FIG. 24

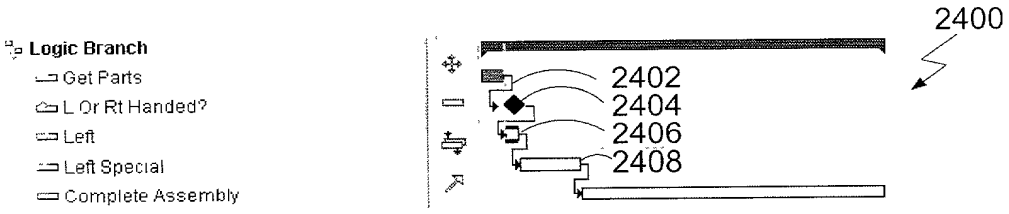


FIG. 25

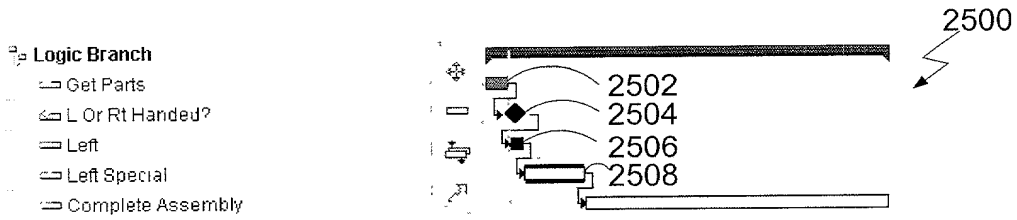


FIG. 26

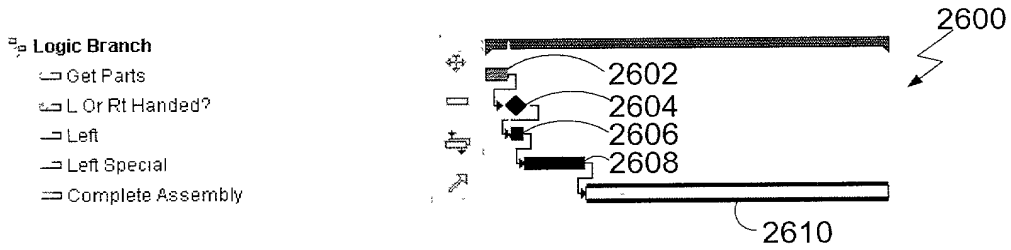


FIG. 27

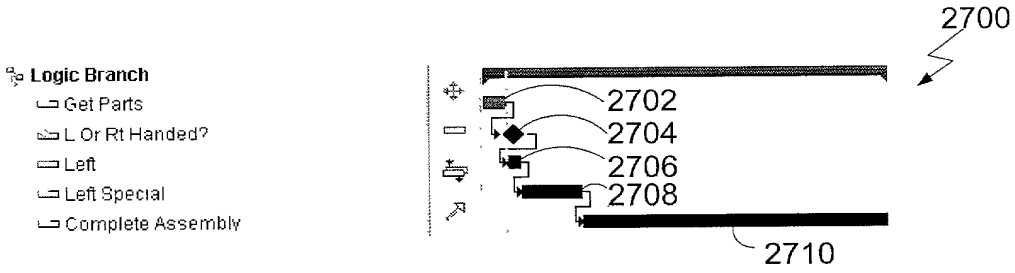


FIG. 28A

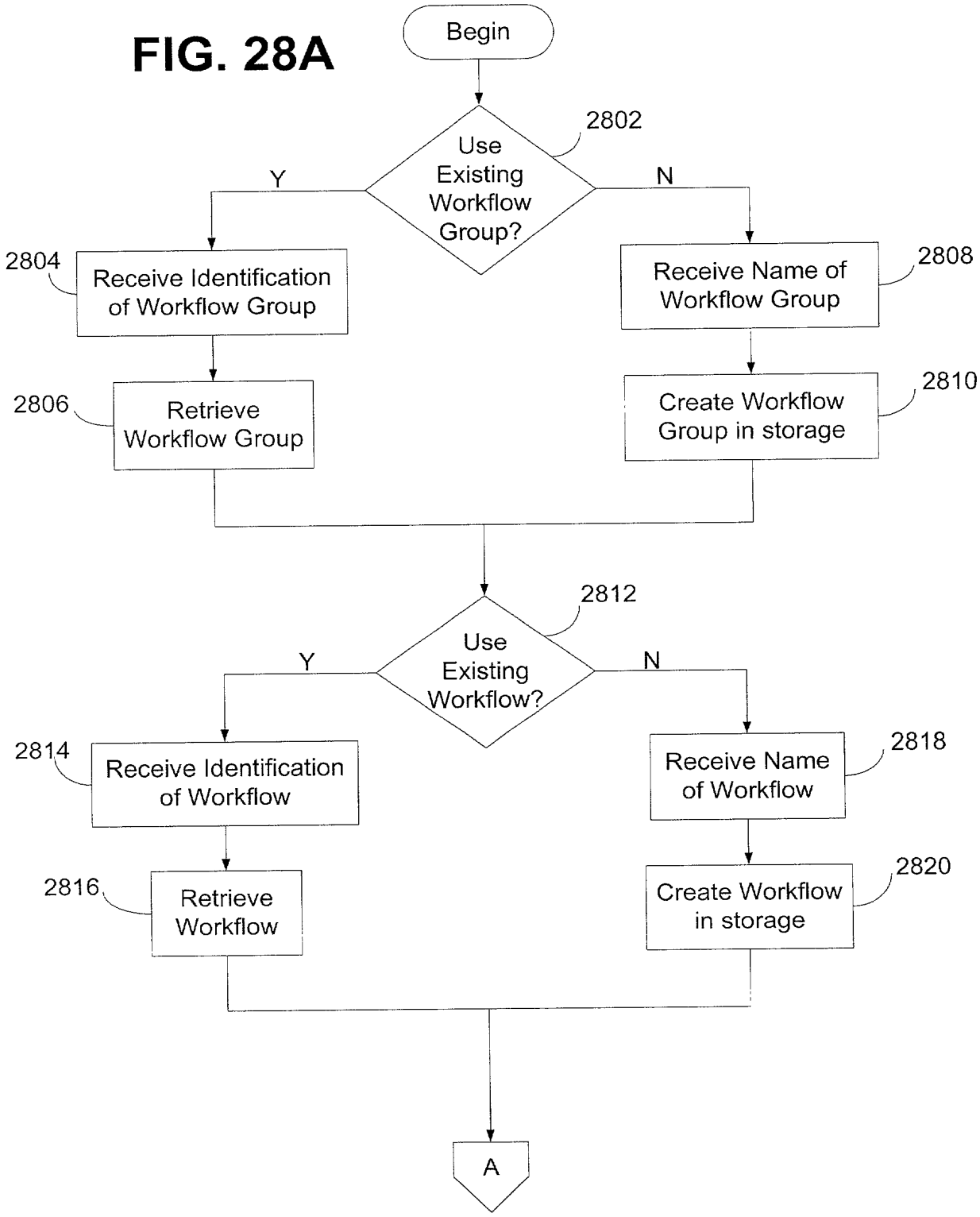

Begin
Use Existing Workflow Group?
2802
Y
N
2804
Receive Identification of Workflow Group
2806
Retrieve Workflow Group
Receive Name of Workflow Group
2808
Create Workflow Group in storage
2810
Use Existing Workflow?
2812
Y
N
2814
Receive Identification of Workflow
2816
Retrieve Workflow
Receive Name of Workflow
2818
Create Workflow in storage
2820
A

FIG. 28B

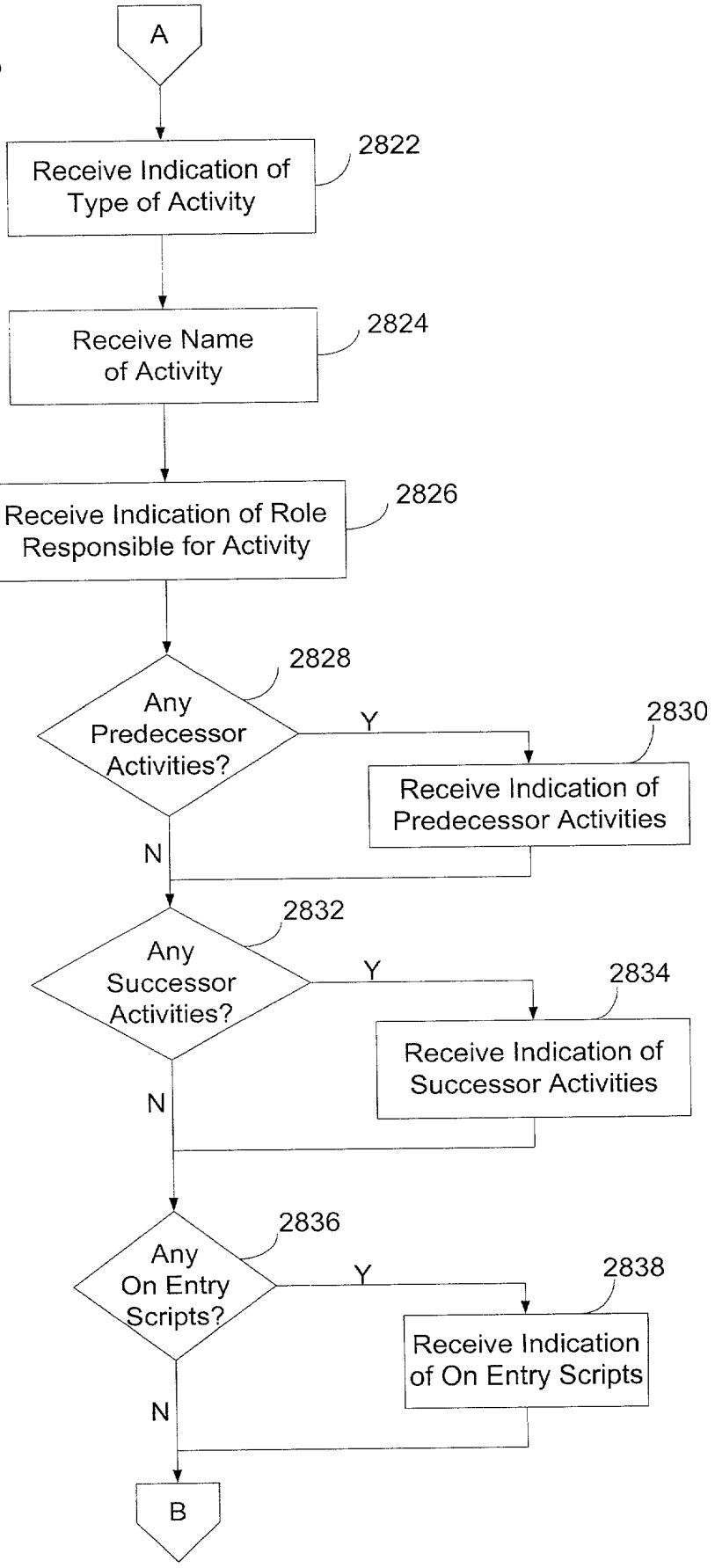

A
Receive Indication of Type of Activity
2822
Receive Name of Activity
2824
Receive Indication of Role Responsible for Activity
2826
Any Predecessor Activities?
2828
Y
Receive Indication of Predecessor Activities
2830
N
Any Successor Activities?
2832
Y
Receive Indication of Successor Activities
2834
N
Any On Entry Scripts?
2836
Y
Receive Indication of On Entry Scripts
2838
N
B

FIG. 28C

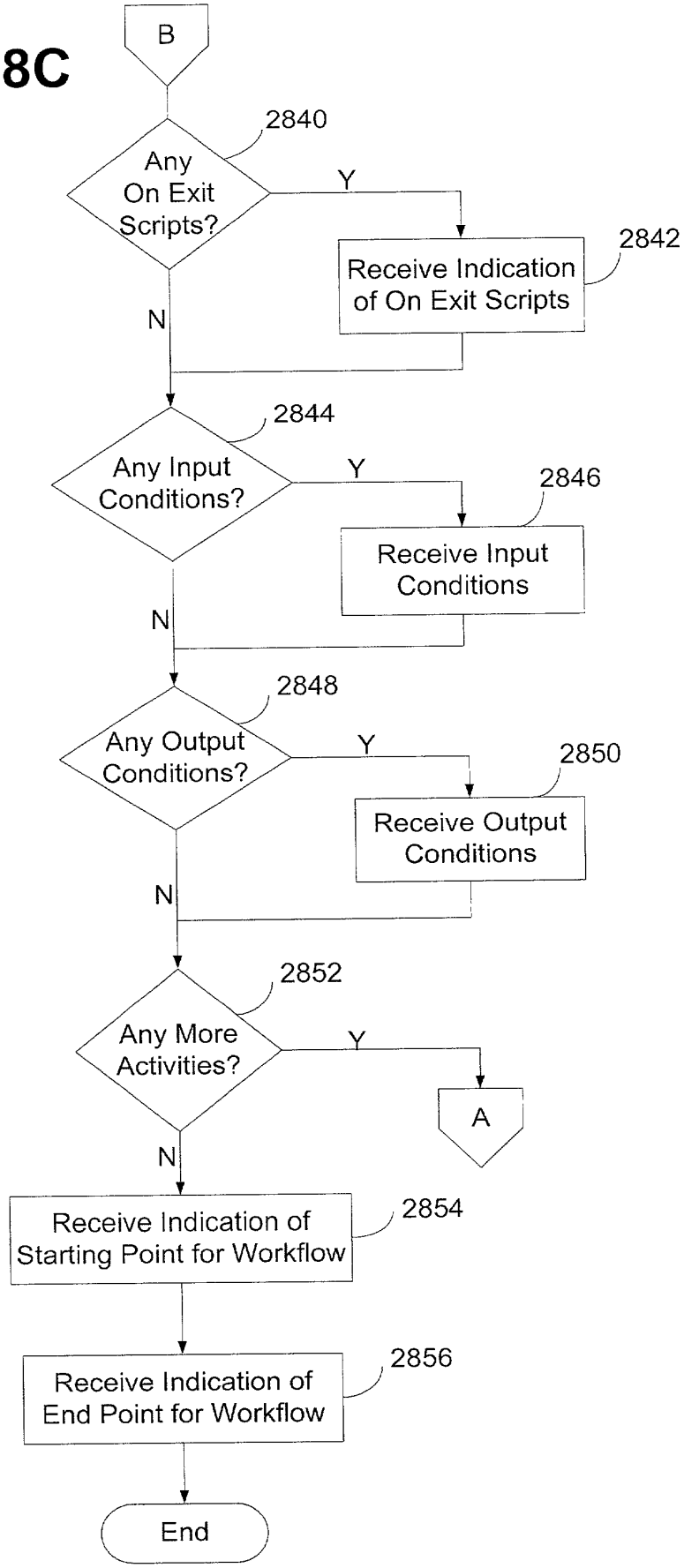

B
2840
Any On Exit Scripts?
Y
N
2842
Receive Indication of On Exit Scripts
2844
Any Input Conditions?
Y
N
2846
Receive Input Conditions
2848
Any Output Conditions?
Y
N
2850
Receive Output Conditions
2852
Any More Activities?
Y
A
N
Receive Indication of Starting Point for Workflow
2854
Receive Indication of End Point for Workflow
2856
End

FIG. 29

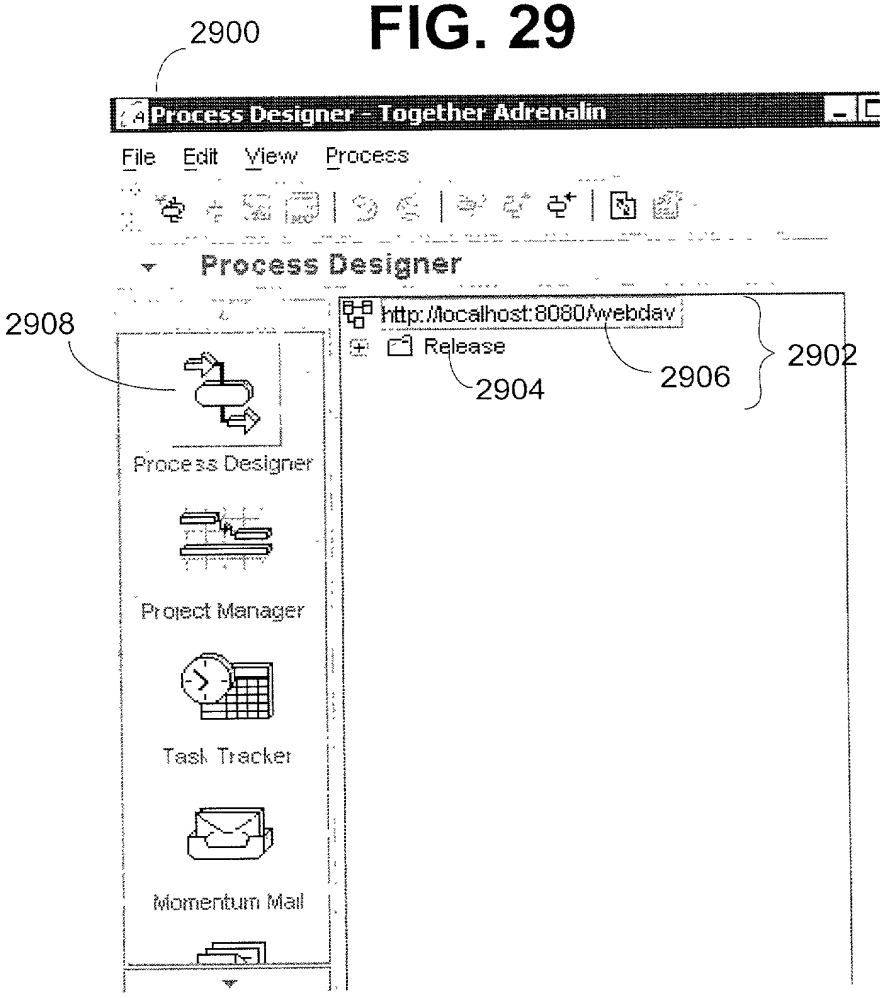
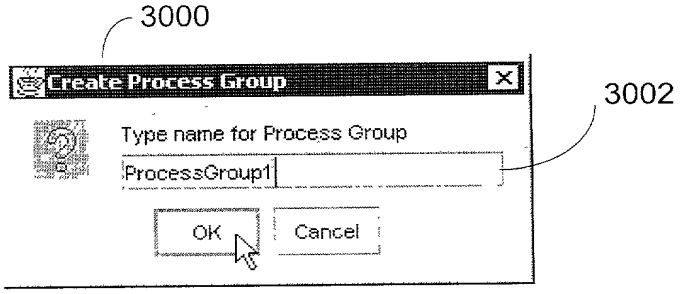

2900
Process Designer - Together Adrenalin
File Edit View Process
Process Designer
2908
http://localhost:8080/webdav
Release
2904
2906
2902
Process Designer
Project Manager
Task Tracker
Momentum Mail

FIG. 30


3000
Create Process Group
Type name for Process Group
ProcessGroup1
OK
Cancel
3002

Doc 1 - 05/15/06

FIG. 31

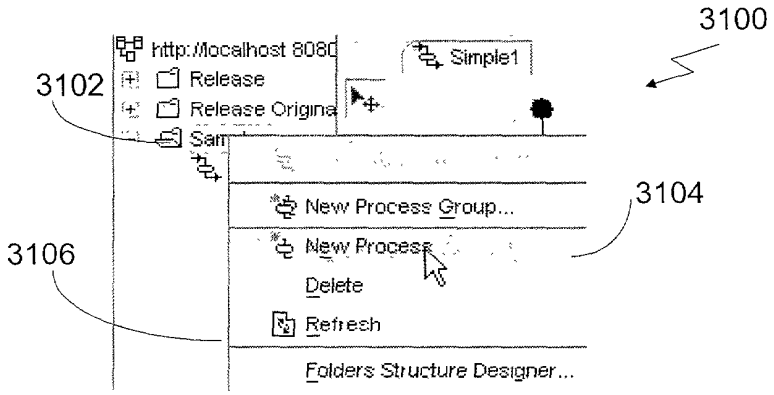


FIG. 32

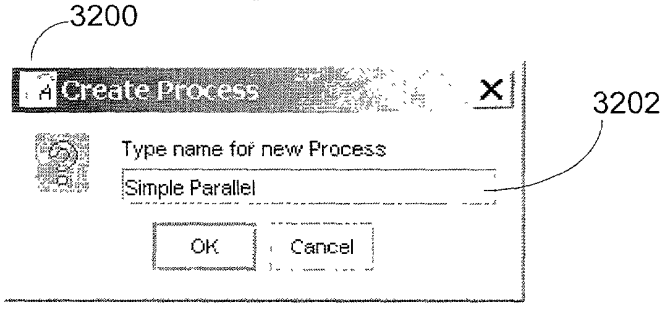


FIG. 33A

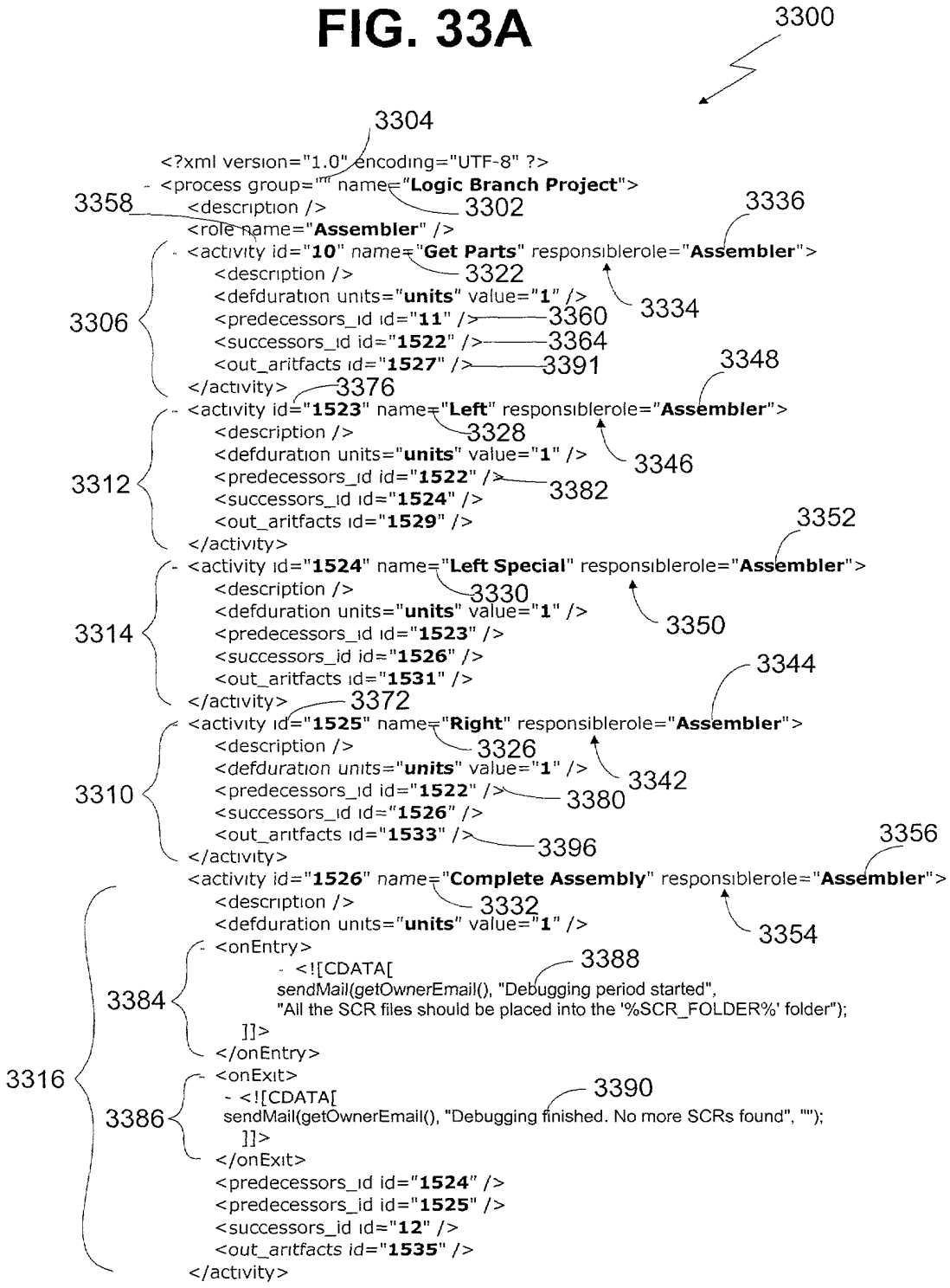


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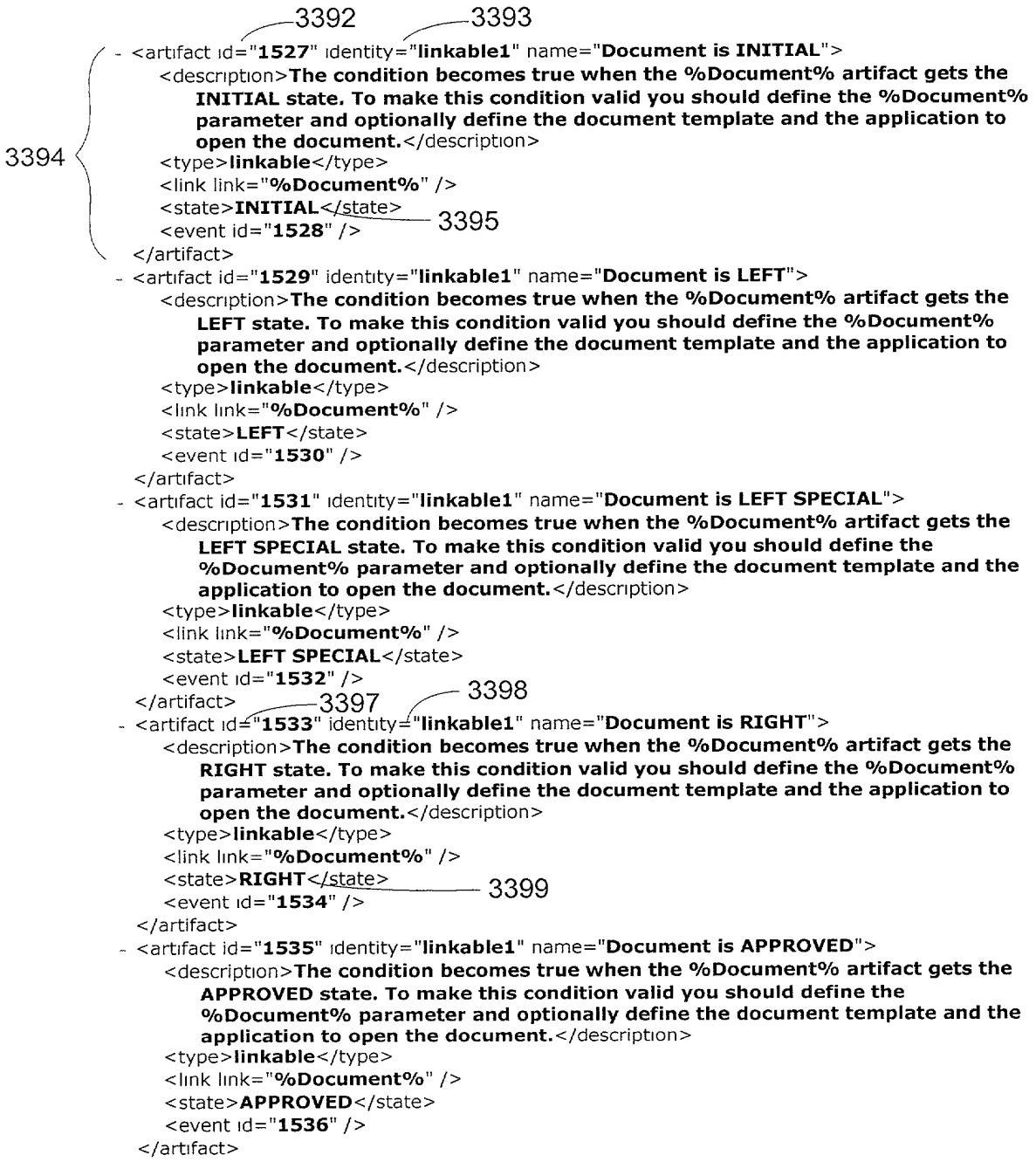
FIG. 33B



US 9,256,356 B2

FIG. 33C

3366
3340
- <logic id="1522" name="L or Rt Handed?" responsiblerole="Assembler">
3324
3338
<description />
- <script>
- <![CDATA[
approved()
]]>
3308
</script>
<predecessors_id id="10" />
3368
<other_path_id id="1525" />
3370
<other_path_id id="1523" />
3374
<defpath_id id="1525" />
3378
</logic>
- <syncbar id="11">
3362
<description />
3318
<startBar>T</startBar>
<successors_id id="10" />
</syncbar>
- <syncbar id="12">
<description />
3320
<endBar>T</endBar>
<predecessors_id id="1526" />
</syncbar>
- <event id="1528" name="??Event_name">
<description>??Event_desc</description>
<type>REQUEST-GUARD</type>
<request>PROPPATCH</request>
</event>
- <event id="1530" name="??Event_name">
<description>??Event_desc</description>
<type>REQUEST-GUARD</type>
<request>PROPPATCH</request>
</event>
- <event id="1532" name="??Event_name">
<description>??Event_desc</description>
<type>REQUEST-GUARD</type>
<request>PROPPATCH</request>
</event>
- <event id="1534" name="??Event_name">
<description>??Event_desc</description>
<type>REQUEST-GUARD</type>
<request>PROPPATCH</request>
</event>
<event id="1536" name="??Event_name">
<description>??Event_desc</description>
<type>REQUEST-GUARD</type>
<request>PROPPATCH</request>
</event>
</process>

FIG. 34

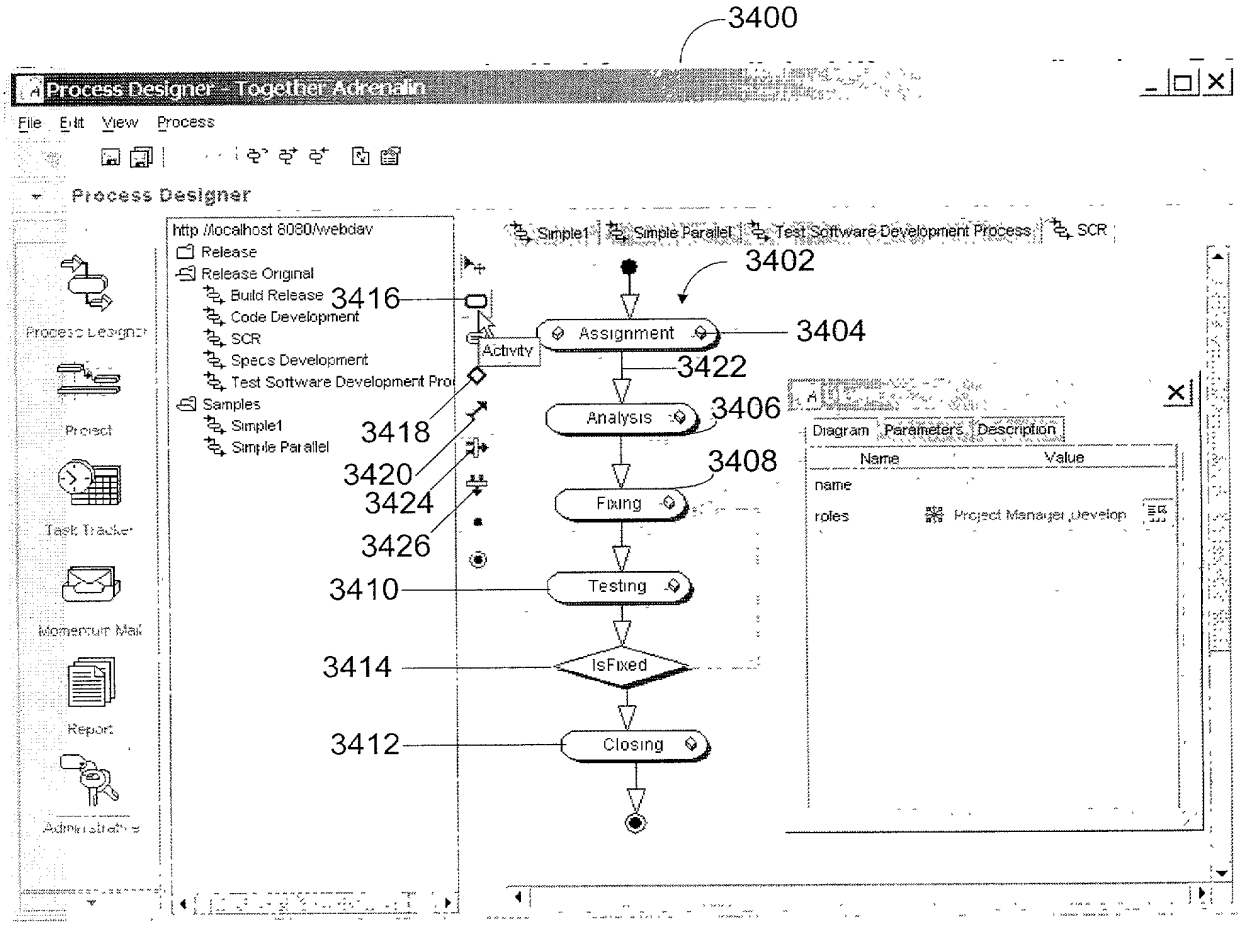

3400
Process Designer – Together Adrenalin
File Edit View Process
Process Designer
http://localhost:8080/webdav
Release
Release Original
Build Release
Code Development
SCR
Specs Development
Test Software Development Pro
Samples
Simple1
Simple Parallel
Simple1
Simple Parallel
Test Software Development Process
SCR
3416
Activity
3418
3420
3424
3426
3402
Assignment
3404
3422
Analysis
3406
3408
Fixing
Testing
3410
IsFixed
3414
Closing
3412
Diagram
Parameters
Description
Name
Value
name
roles
Project Manager,Develop
Process Designer
Project
Task Tracker
Momentum Mail
Report

FIG. 35

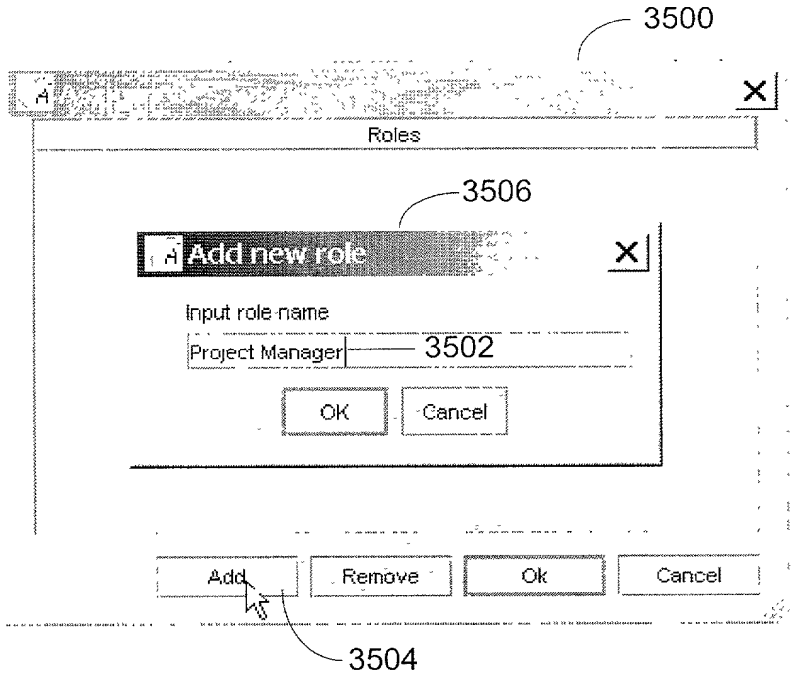

3500
Roles
3506
Add new role
Input role name
Project Manager
3502
OK
Cancel
Add
Remove
Ok
Cancel
3504

FIG. 36

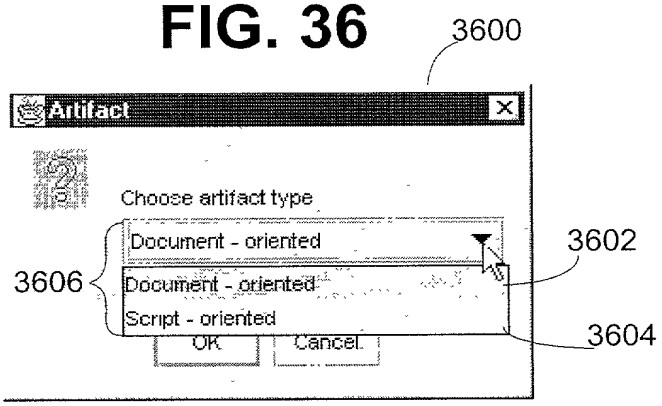

3600
Artifact
Choose artifact type
Document - oriented
3602
3606
Document - oriented
Script - oriented
3604
OK
Cancel

FIG. 37

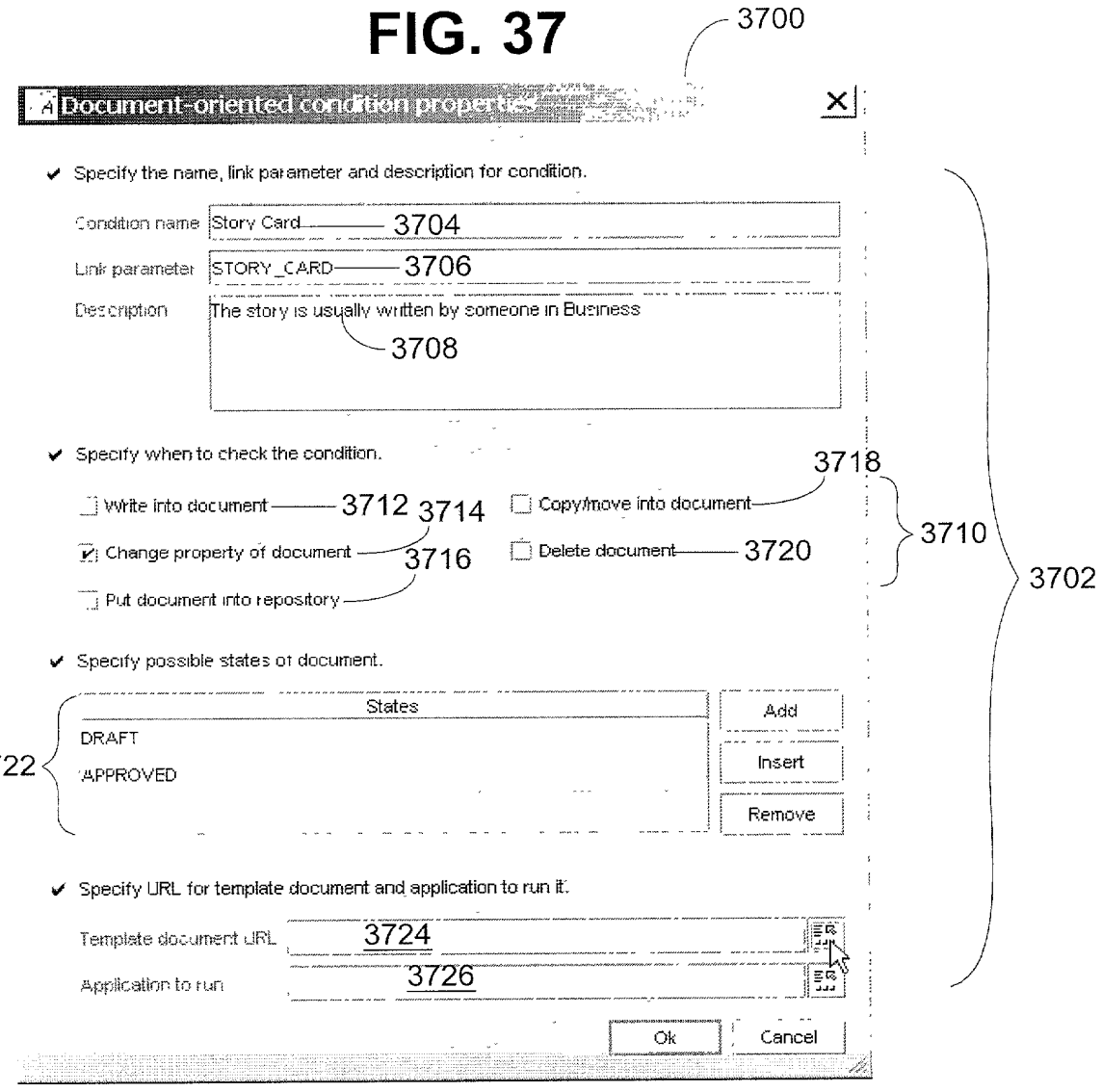

3700
Document-oriented condition properties
Specify the name, link parameter and description for condition.
Condition name
Story Card
3704
Link parameter
STORY_CARD
3706
Description
The story is usually written by someone in Business
3708
Specify when to check the condition.
3718
Write into document
3712
3714
Copy/move into document
Change property of document
3716
Delete document
3720
3710
Put document into repository
3702
Specify possible states of document.
3722
States
DRAFT
APPROVED
Add
Insert
Remove
Specify URL for template document and application to run it.
Template document URL
3724
Application to run
3726
Ok
Cancel

FIG. 38

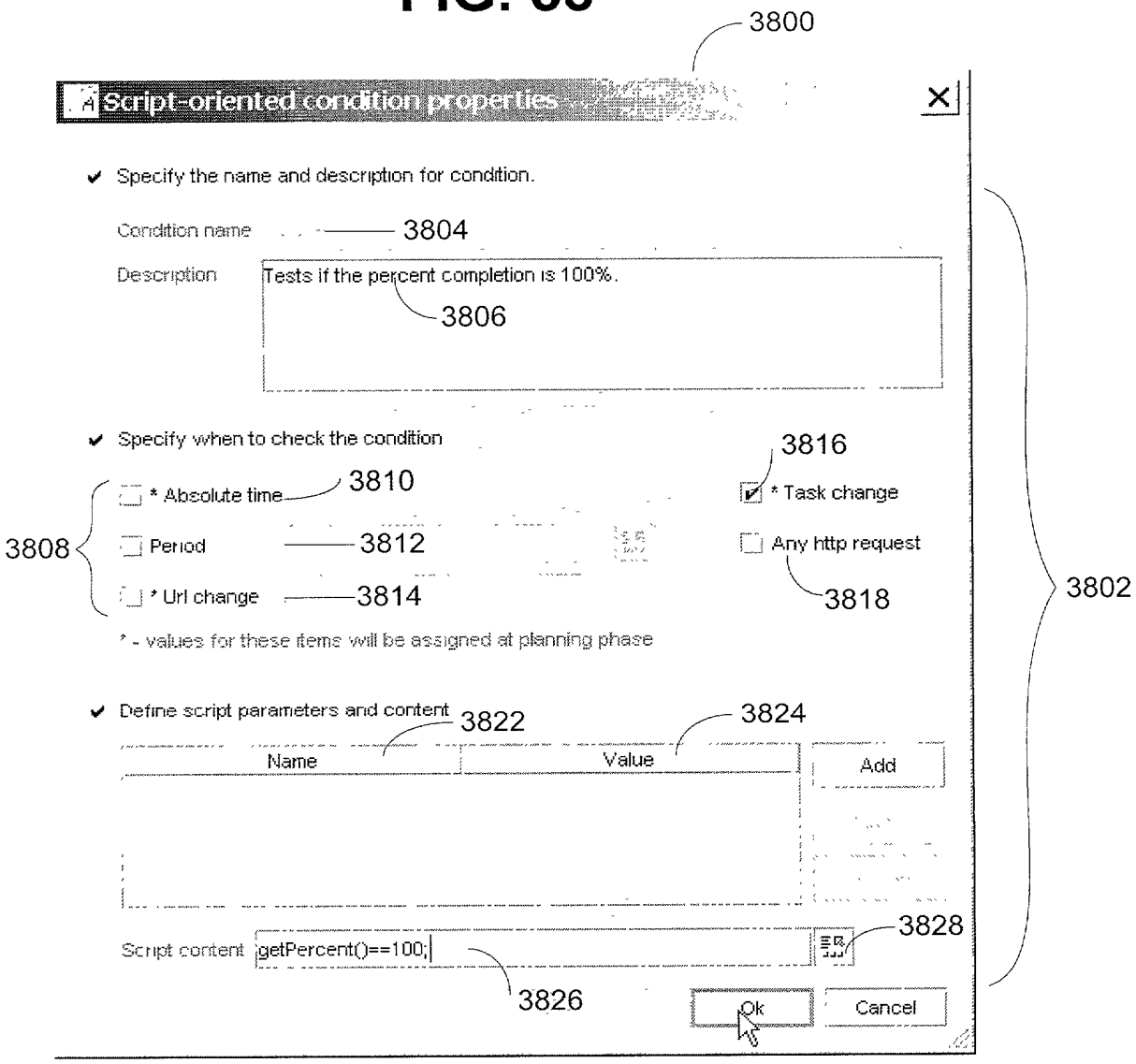

3800
Script-oriented condition properties
Specify the name and description for condition.
Condition name
3804
Description
Tests if the percent completion is 100%.
3806
Specify when to check the condition
3816
* Absolute time
3810
* Task change
3808
Period
3812
Any http request
* Url change
3814
3818
* - values for these items will be assigned at planning phase
3802
Define script parameters and content
3822
3824
Name
Value
Add
3828
Script content
getPercent()==100;
3826
Ok
Cancel

FIG. 39

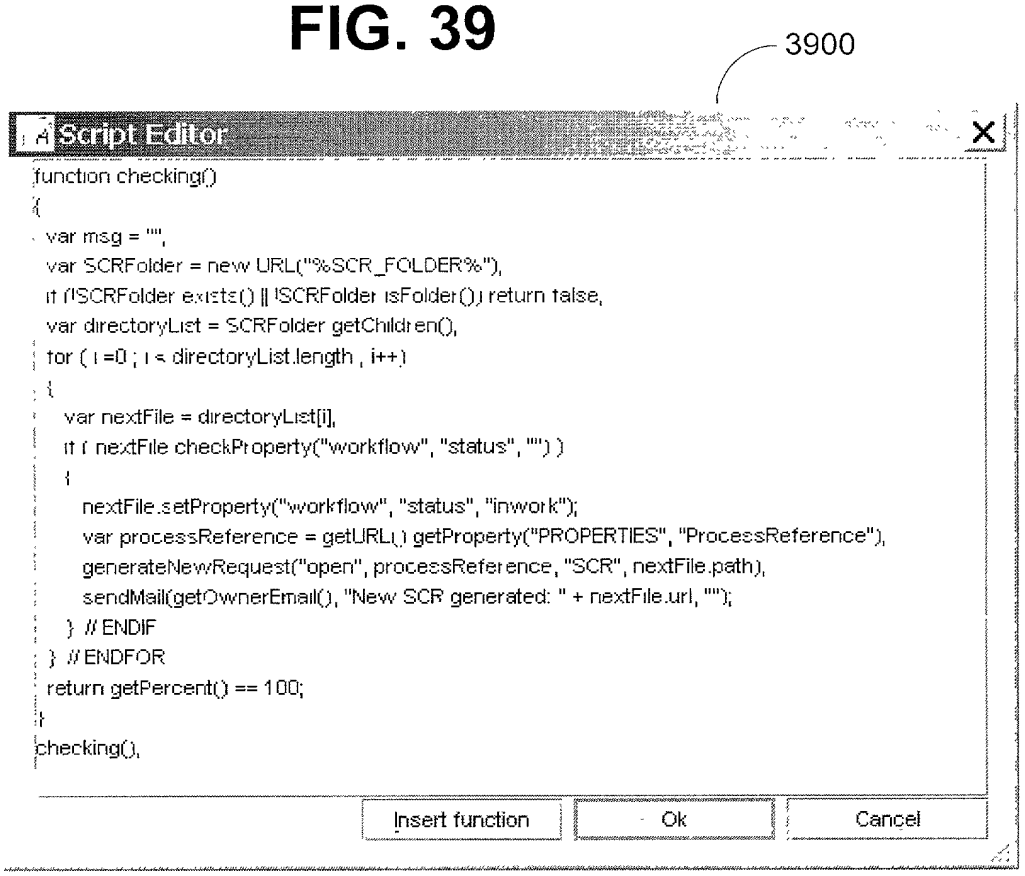

3900
Script Editor
function checking()
{
var msg = "",
var SCRFolder = new URL("%SCR_FOLDER%"),
if (!SCRFolder.exists() || !SCRFolder.isFolder()) return false,
var directoryList = SCRFolder.getChildren(),
for (i=0 ; i < directoryList.length ; i++)
{
var nextFile = directoryList[i],
if (nextFile.checkProperty("workflow", "status", ""))
{
nextFile.setProperty("workflow", "status", "inwork"),
var processReference = getURL() getProperty("PROPERTIES", "ProcessReference"),
generateNewRequest("open", processReference, "SCR", nextFile.path),
sendMail(getOwnerEmail(), "New SCR generated: " + nextFile.url, ""),
} // ENDIF
} // ENDFOR
return getPercent() == 100;
}
checking(),
Insert function
Ok
Cancel

FIG. 40

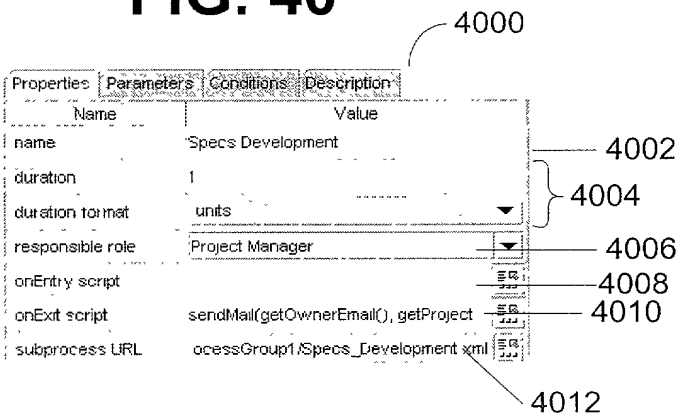

4000
Properties
Parameters
Conditions
Description
Name
Value
name
Specs Development
duration
1
duration format
units
responsible role
Project Manager
onEntry script
onExit script
sendMail(getOwnerEmail(), getProject
subprocess URL
ocessGroup1/Specs_Development.xml
4002
4004
4006
4008
4010
4012

FIG. 41A

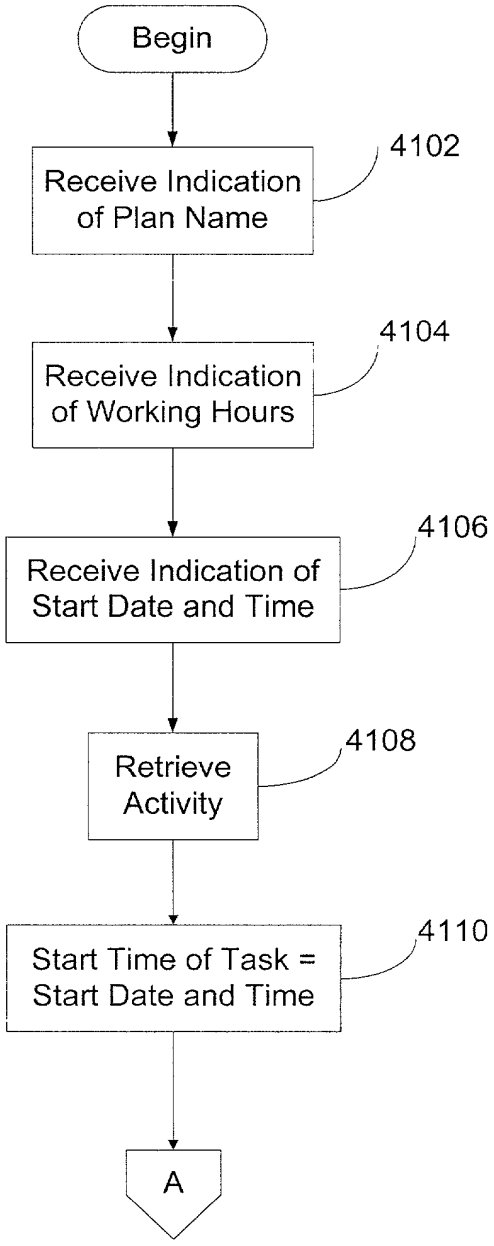

Begin
Receive Indication of Plan Name
4102
Receive Indication of Working Hours
4104
Receive Indication of Start Date and Time
4106
Retrieve Activity
4108
Start Time of Task = Start Date and Time
4110
A

FIG. 41B

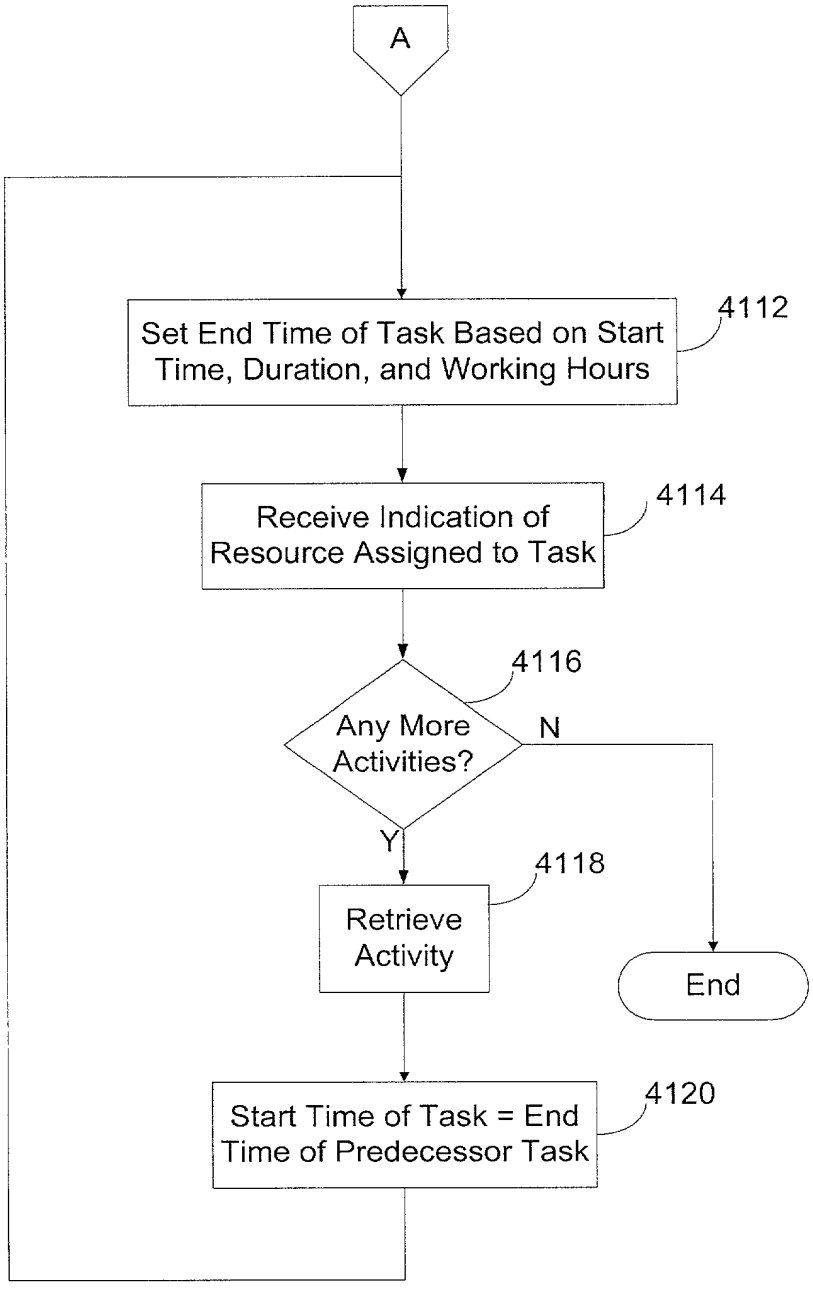

A
Set End Time of Task Based on Start Time, Duration, and Working Hours
4112
Receive Indication of Resource Assigned to Task
4114
4116
Any More Activities?
N
Y
4118
Retrieve Activity
End
Start Time of Task = End Time of Predecessor Task
4120

FIG. 42

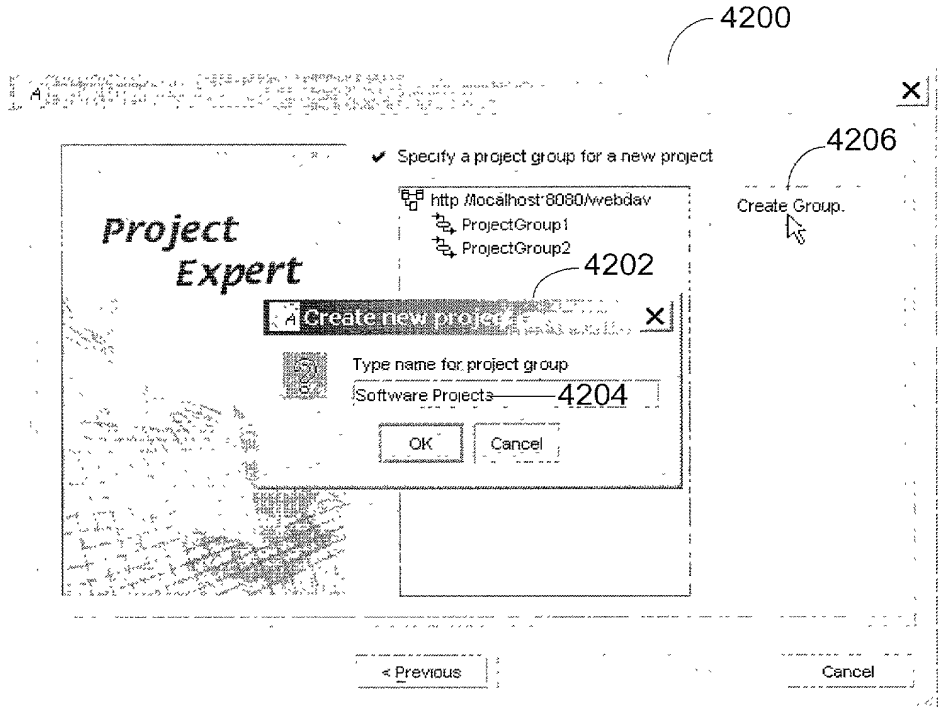


FIG. 43

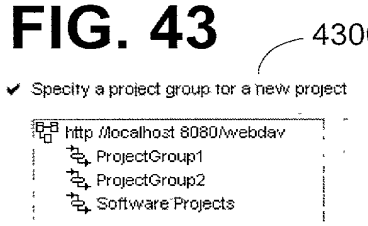


FIG. 44

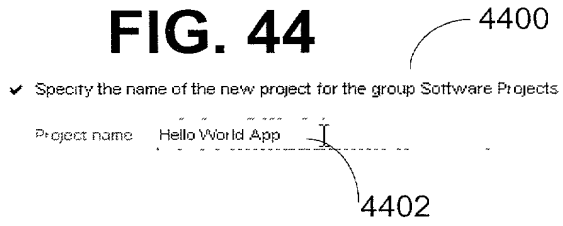


FIG. 45

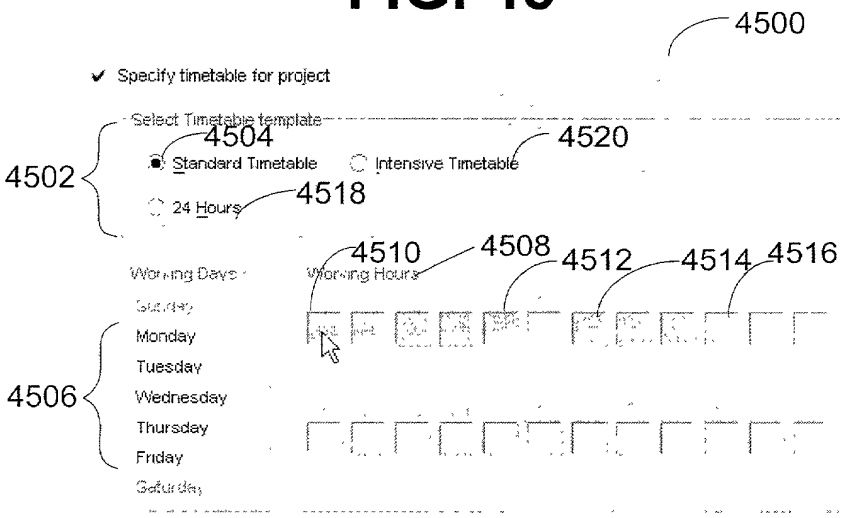
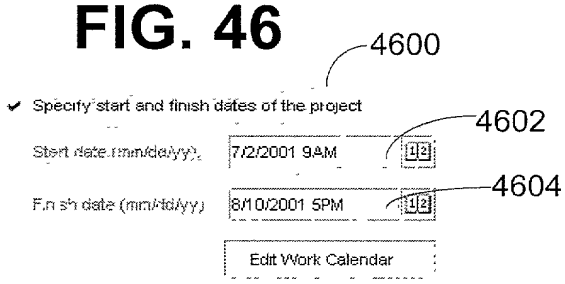

4500
Specify timetable for project
Select Timetable template
4504
4520
4502
Standard Timetable
Intensive Timetable
24 Hours
4518
4510
4508
4512
4514
4516
Working Days
Working Hours
Saturday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
4506

FIG. 46


4600
Specify start and finish dates of the project
4602
Start date (mm/dd/yy):
7/2/2001 9AM
4604
Finish date (mm/dd/yy)
8/10/2001 5PM
Edit Work Calendar

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4700

FIG. 47

```
<?xml version="1.0" encoding="UTF-8" ?>
- <process group="" name="Serial & Parallel">
    <description />
    <role name="Worker" />
- <activity id="10" name="Serial 1" responsiblerole="Worker">
      <description />
      <defduration units="hours" value="9" />
      <predecessors_id id="11" />
      <successors_id id="1522" />
    </activity>
- <activity id="1523" name="Parallel 1" responsiblerole="Worker">
      <description />
      <defduration units="hours" value="24" />
      <predecessors_id id="1522" />
      <successors_id id="1525" />
    </activity>
- <activity id="1524" name="Parallel 2" responsiblerole="Worker">
      <description />
      <defduration units="hours" value="24" />
      <predecessors_id id="1522" />
      <successors_id id="1525" />
    </activity>
- <activity id="1526" name="Serial 2" responsiblerole="Worker">
      <description />
      <defduration units="hours" value="24" />
      <predecessors_id id="1525" />
      <successors_id id="12" />
    </activity>
- <syncbar id="11">
      <description />
      <startBar>T</startBar>
      <successors_id id="10" />
    </syncbar>
- <syncbar id="12">
      <description />
      <endBar>T</endBar>
      <predecessors_id id="1526" />
    </syncbar>
- <syncbar id="1522" name="SyncBarH1">
      <description />
      <predecessors_id id="10" />
      <successors_id id="1523" />
      <successors_id id="1524" />
    </syncbar>
- <syncbar id="1525" name="SyncBarH2">
      <description />
      <predecessors_id id="1523" />
      <predecessors_id id="1524" />
      <successors_id id="1526" />
    </syncbar>
</process>
```

4702 4704 4706 4710 4708 4712 4714 4716

FIG. 48

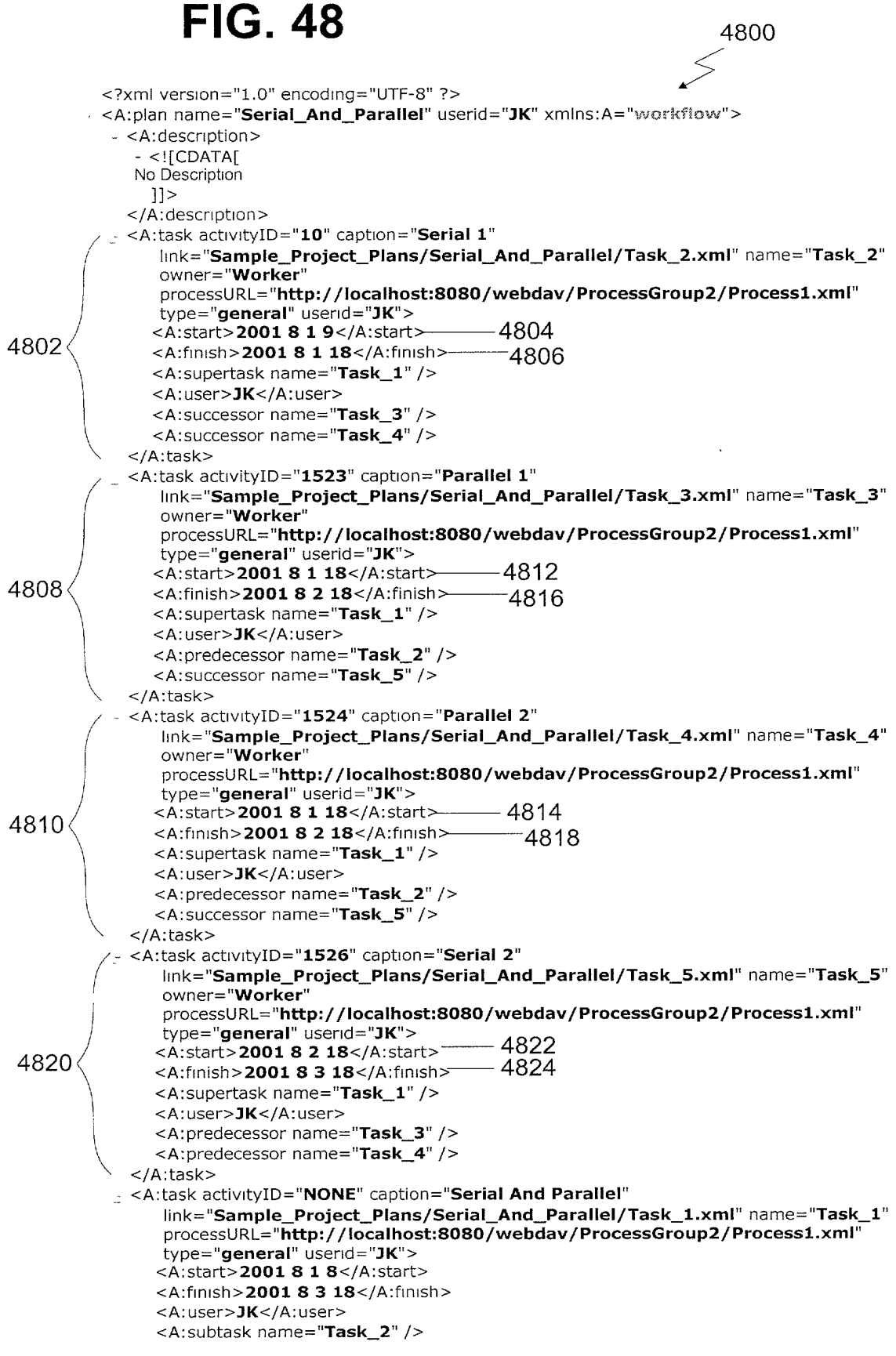

4800
<?xml version="1.0" encoding="UTF-8" ?>
<A:plan name="Serial_And_Parallel" userid="JK" xmlns:A="workflow">
<A:description>
<![CDATA[
No Description
]]>
</A:description>
4802
<A:task activityID="10" caption="Serial 1"
link="Sample_Project_Plans/Serial_And_Parallel/Task_2.xml" name="Task_2"
owner="Worker"
processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
type="general" userid="JK">
<A:start>2001 8 1 9</A:start>
4804
<A:finish>2001 8 1 18</A:finish>
4806
<A:supertask name="Task_1" />
<A:user>JK</A:user>
<A:successor name="Task_3" />
<A:successor name="Task_4" />
</A:task>
4808
<A:task activityID="1523" caption="Parallel 1"
link="Sample_Project_Plans/Serial_And_Parallel/Task_3.xml" name="Task_3"
owner="Worker"
processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
type="general" userid="JK">
<A:start>2001 8 1 18</A:start>
4812
<A:finish>2001 8 2 18</A:finish>
4816
<A:supertask name="Task_1" />
<A:user>JK</A:user>
<A:predecessor name="Task_2" />
<A:successor name="Task_5" />
</A:task>
4810
<A:task activityID="1524" caption="Parallel 2"
link="Sample_Project_Plans/Serial_And_Parallel/Task_4.xml" name="Task_4"
owner="Worker"
processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
type="general" userid="JK">
<A:start>2001 8 1 18</A:start>
4814
<A:finish>2001 8 2 18</A:finish>
4818
<A:supertask name="Task_1" />
<A:user>JK</A:user>
<A:predecessor name="Task_2" />
<A:successor name="Task_5" />
</A:task>
4820
<A:task activityID="1526" caption="Serial 2"
link="Sample_Project_Plans/Serial_And_Parallel/Task_5.xml" name="Task_5"
owner="Worker"
processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
type="general" userid="JK">
<A:start>2001 8 2 18</A:start>
4822
<A:finish>2001 8 3 18</A:finish>
4824
<A:supertask name="Task_1" />
<A:user>JK</A:user>
<A:predecessor name="Task_3" />
<A:predecessor name="Task_4" />
</A:task>
<A:task activityID="NONE" caption="Serial And Parallel"
link="Sample_Project_Plans/Serial_And_Parallel/Task_1.xml" name="Task_1"
processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
type="general" userid="JK">
<A:start>2001 8 1 8</A:start>
<A:finish>2001 8 3 18</A:finish>
<A:user>JK</A:user>
<A:subtask name="Task_2" />

FIG. 49

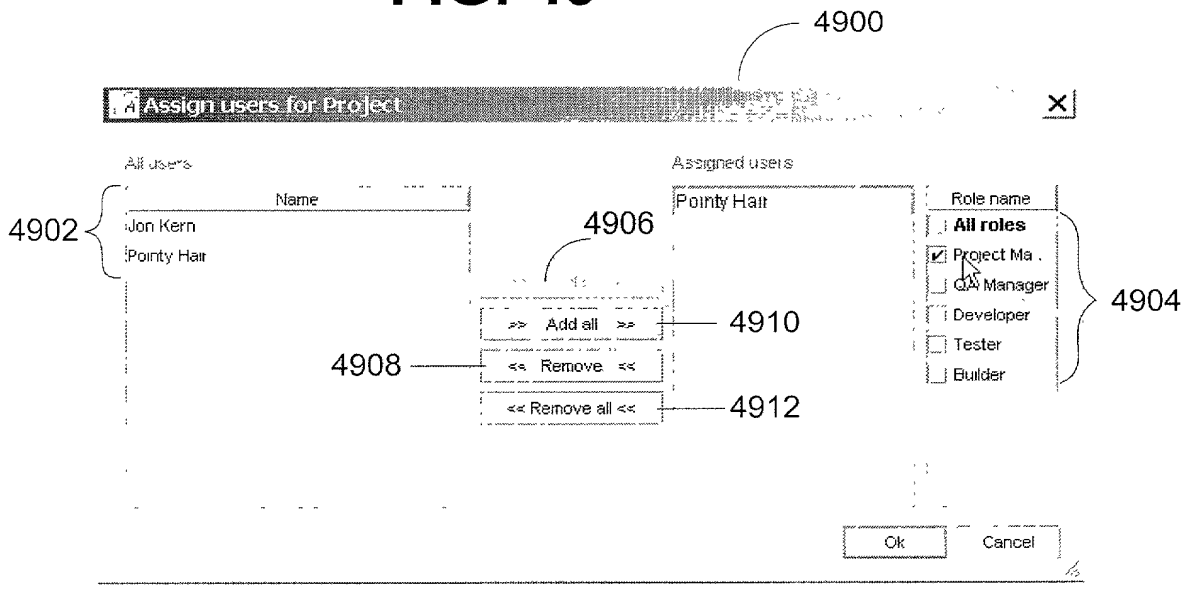

4900
Assign users for Project
All users
Name
Jon Kern
Pointy Hair
4902
Assigned users
Pointy Hair
4906
Role name
All roles
Project Ma .
Manager
Developer
Tester
Builder
4904
>> Add all >>
4910
4908
<< Remove <<
<< Remove all <<
4912
Ok
Cancel

FIG. 50

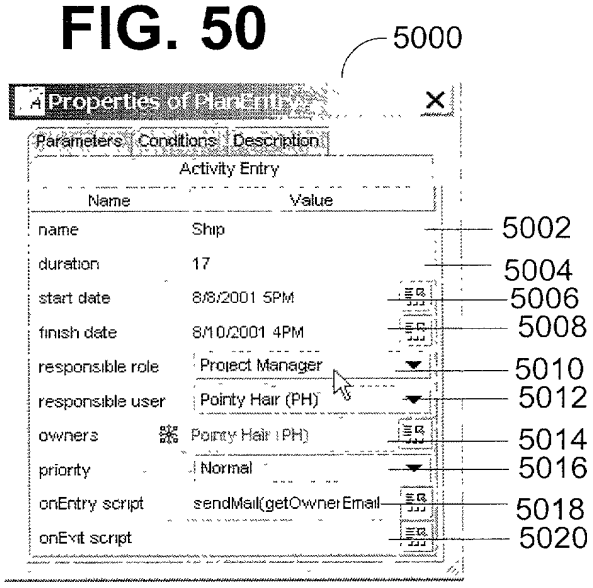

5000
Properties of PlanEntity
Parameters
Conditions
Description
Activity Entry
Name
Value
name
Ship
5002
duration
17
5004
start date
8/8/2001 5PM
5006
finish date
8/10/2001 4PM
5008
responsible role
Project Manager
5010
responsible user
Pointy Hair (PH)
5012
owners
Pointy Hair (PH)
5014
priority
Normal
5016
onEntry script
sendMail(getOwnerEmail
5018
onExit script
5020

FIG. 51

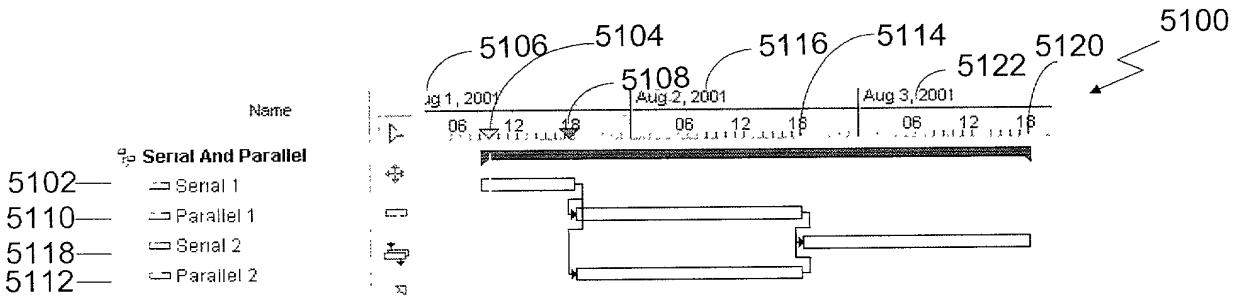

5100
5102
5104
5106
5108
5110
5112
5114
5116
5118
5120
5122
Name
Serial And Parallel
Serial 1
Parallel 1
Serial 2
Parallel 2
Aug 1, 2001
Aug 2, 2001
Aug 3, 2001
06
12
18

FIG. 52

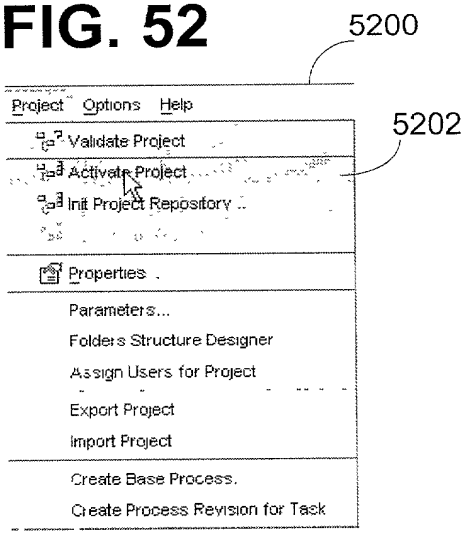

5200
5202
Project
Options
Help
Validate Project
Activate Project
Init Project Repository
Properties
Parameters...
Folders Structure Designer
Assign Users for Project
Export Project
Import Project
Create Base Process.
Create Process Revision for Task

FIG. 53

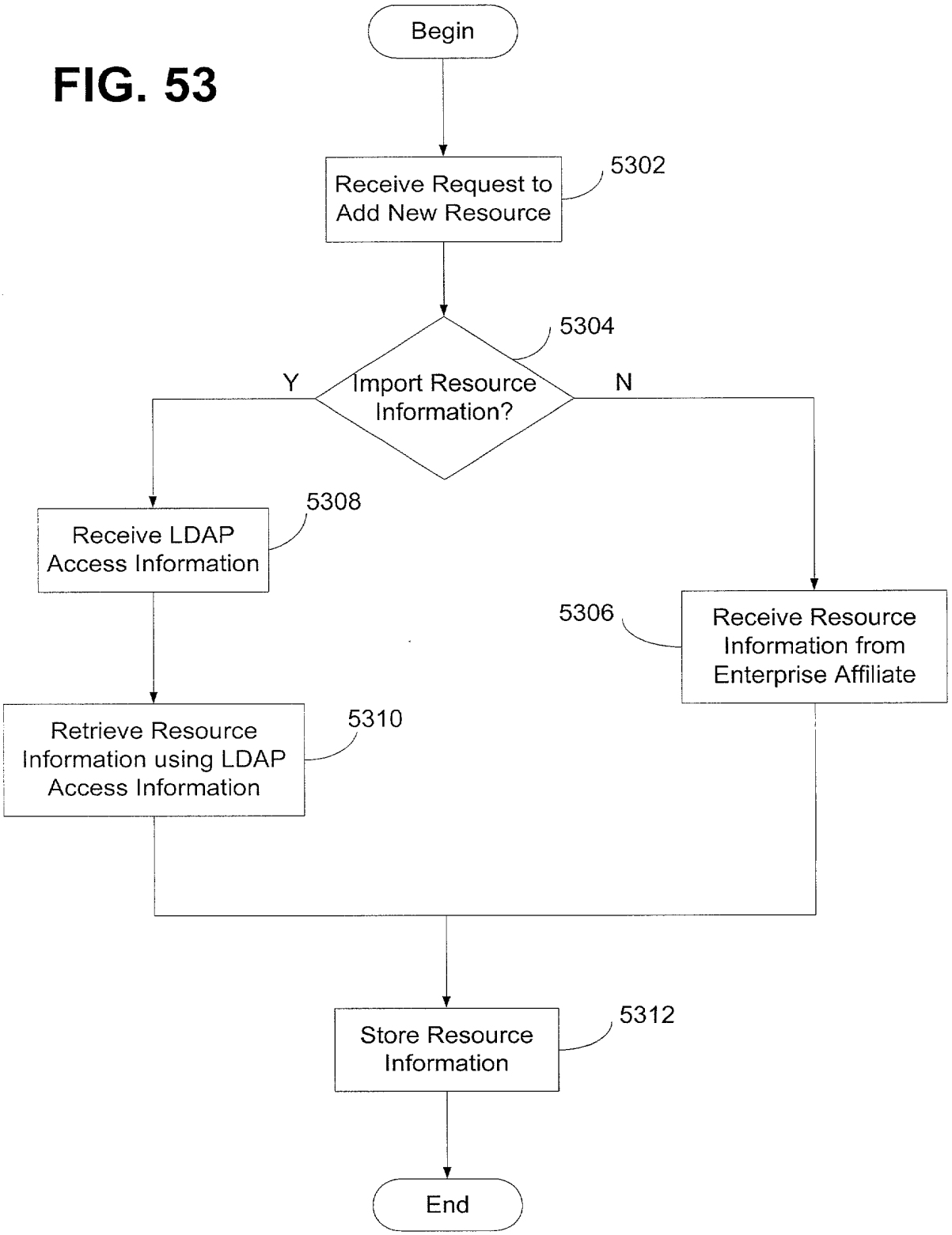

Begin
Receive Request to Add New Resource
5302
5304
Import Resource Information?
Y
N
Receive LDAP Access Information
5308
Retrieve Resource Information using LDAP Access Information
5310
5306
Receive Resource Information from Enterprise Affiliate
Store Resource Information
5312
End

FIG. 54

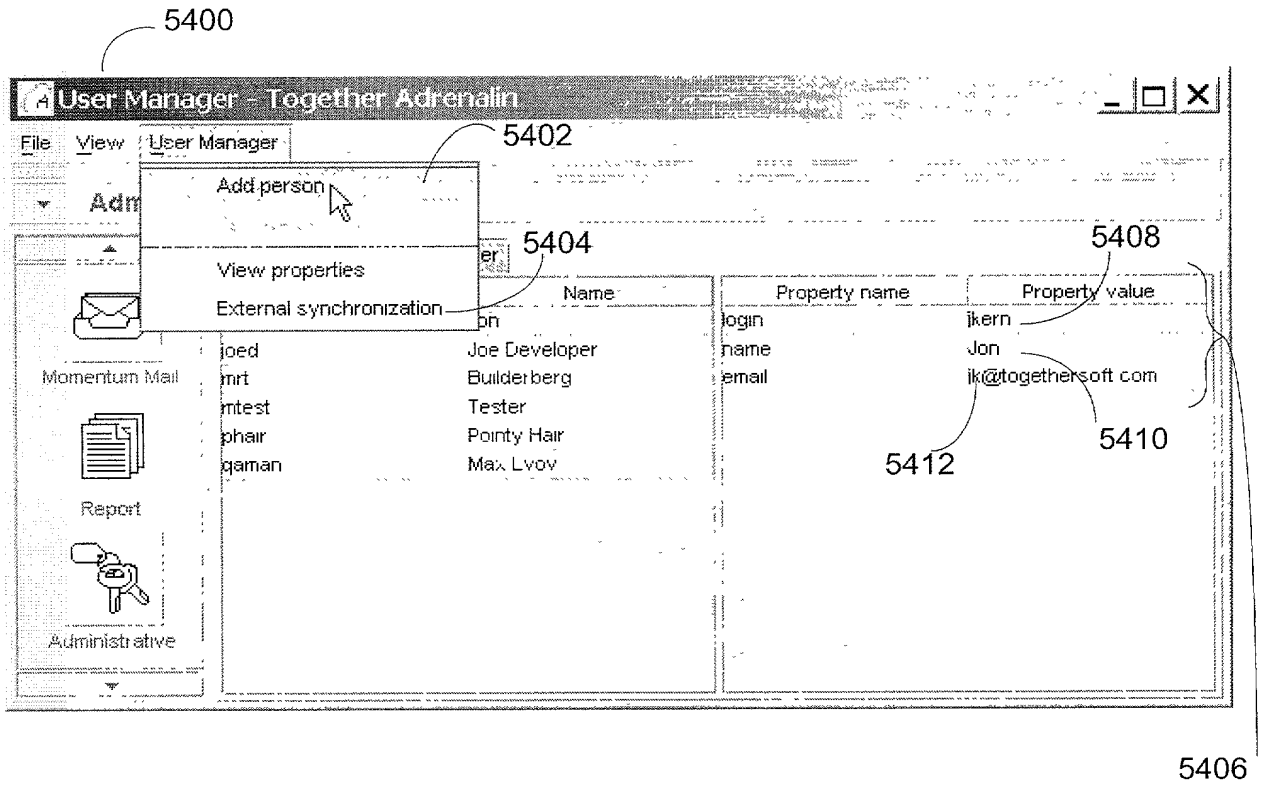

5400
User Manager - Together Adrenalin
File
View
User Manager
5402
Add person
View properties
External synchronization
5404
5408
Name
Property name
Property value
login
jkern
name
Jon
email
jk@togethersoft.com
joed
Joe Developer
mrt
Builderberg
mtest
Tester
phair
Pointy Hair
qaman
Max Lvov
Momentum Mail
Report
Administrative
5410
5412
5406

FIG. 55

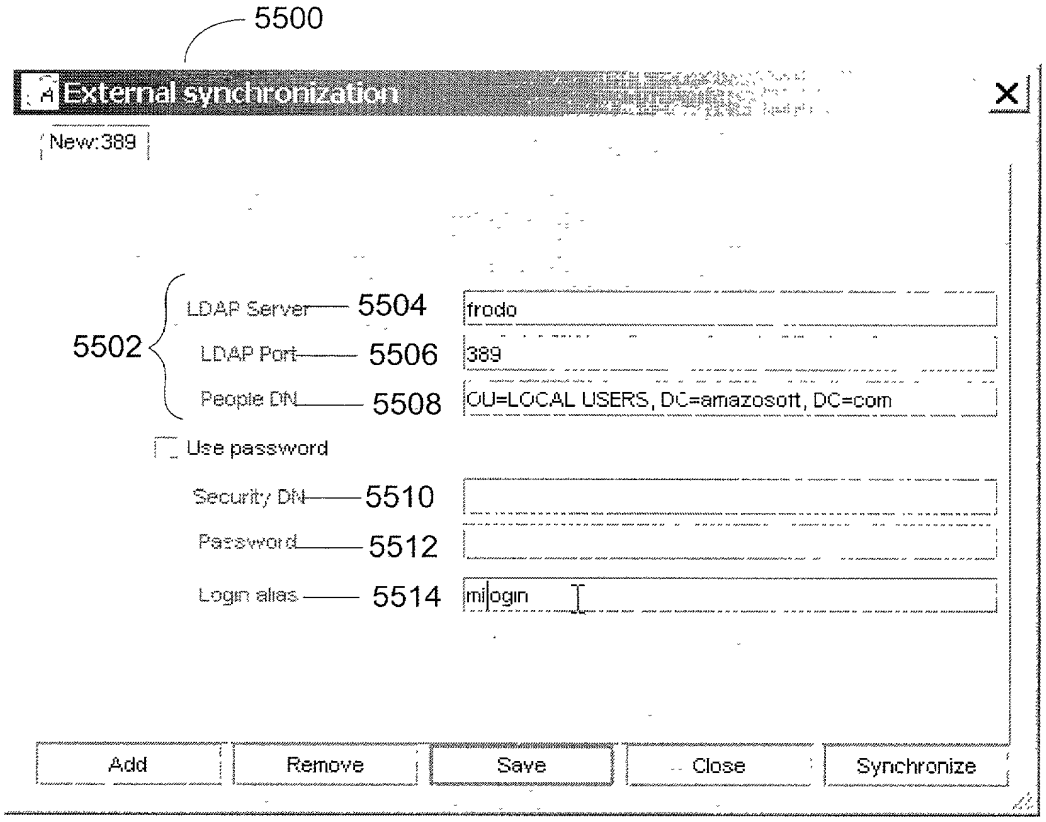

5500
External synchronization
New:389
5502
LDAP Server
5504
frodo
LDAP Port
5506
389
People DN
5508
OU=LOCAL USERS, DC=amazosoft, DC=com
Use password
Security DN
5510
Password
5512
Login alias
5514
mlogin
Add
Remove
Save
Close
Synchronize

FIG. 56

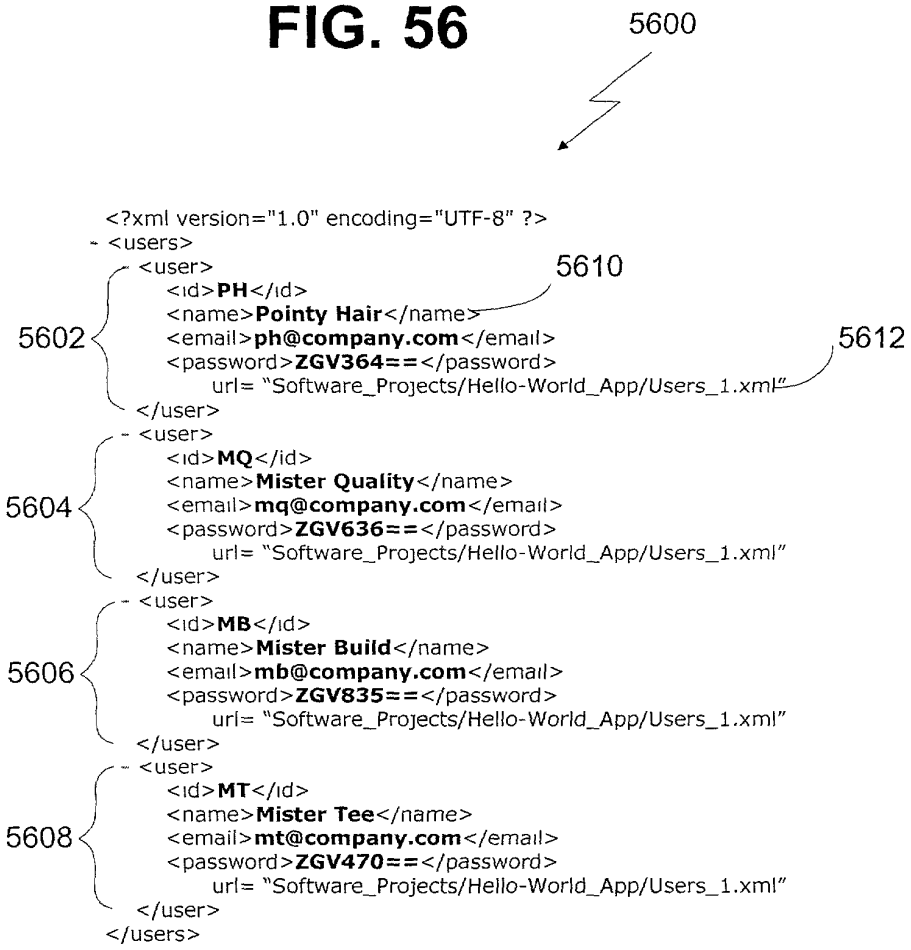

5600
<?xml version="1.0" encoding="UTF-8" ?>
- <users>
- <user>
<id>PH</id>
<name>Pointy Hair</name>
<email>ph@company.com</email>
<password>ZGV364==</password>
url= "Software_Projects/Hello-World_App/Users_1.xml"
</user>
5610
5612
5602
- <user>
<id>MQ</id>
<name>Mister Quality</name>
<email>mq@company.com</email>
<password>ZGV636==</password>
url= "Software_Projects/Hello-World_App/Users_1.xml"
</user>
5604
- <user>
<id>MB</id>
<name>Mister Build</name>
<email>mb@company.com</email>
<password>ZGV835==</password>
url= "Software_Projects/Hello-World_App/Users_1.xml"
</user>
5606
- <user>
<id>MT</id>
<name>Mister Tee</name>
<email>mt@company.com</email>
<password>ZGV470==</password>
url= "Software_Projects/Hello-World_App/Users_1.xml"
</user>
5608
</users>

FIG. 57A

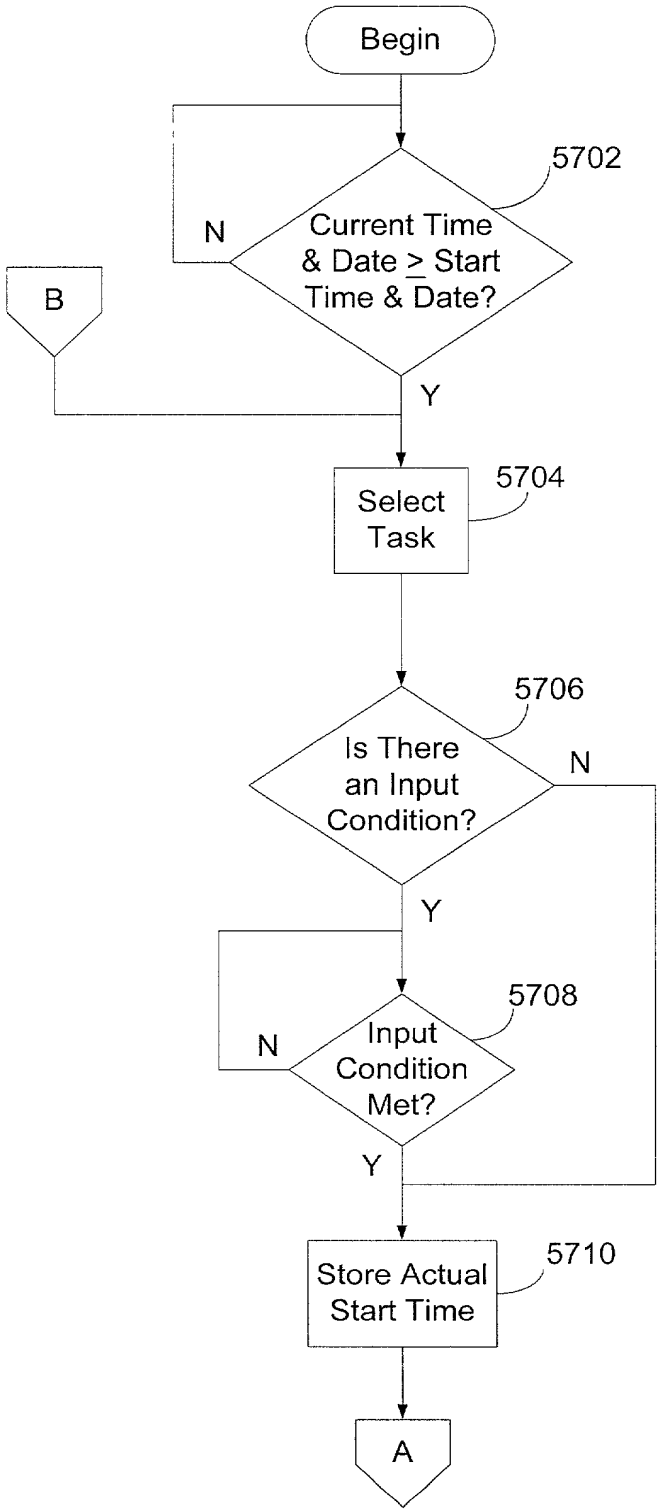

Begin
5702
Current Time & Date ≥ Start Time & Date?
N
B
Y
5704
Select Task
5706
Is There an Input Condition?
N
Y
5708
Input Condition Met?
N
Y
5710
Store Actual Start Time
A

FIG. 57B

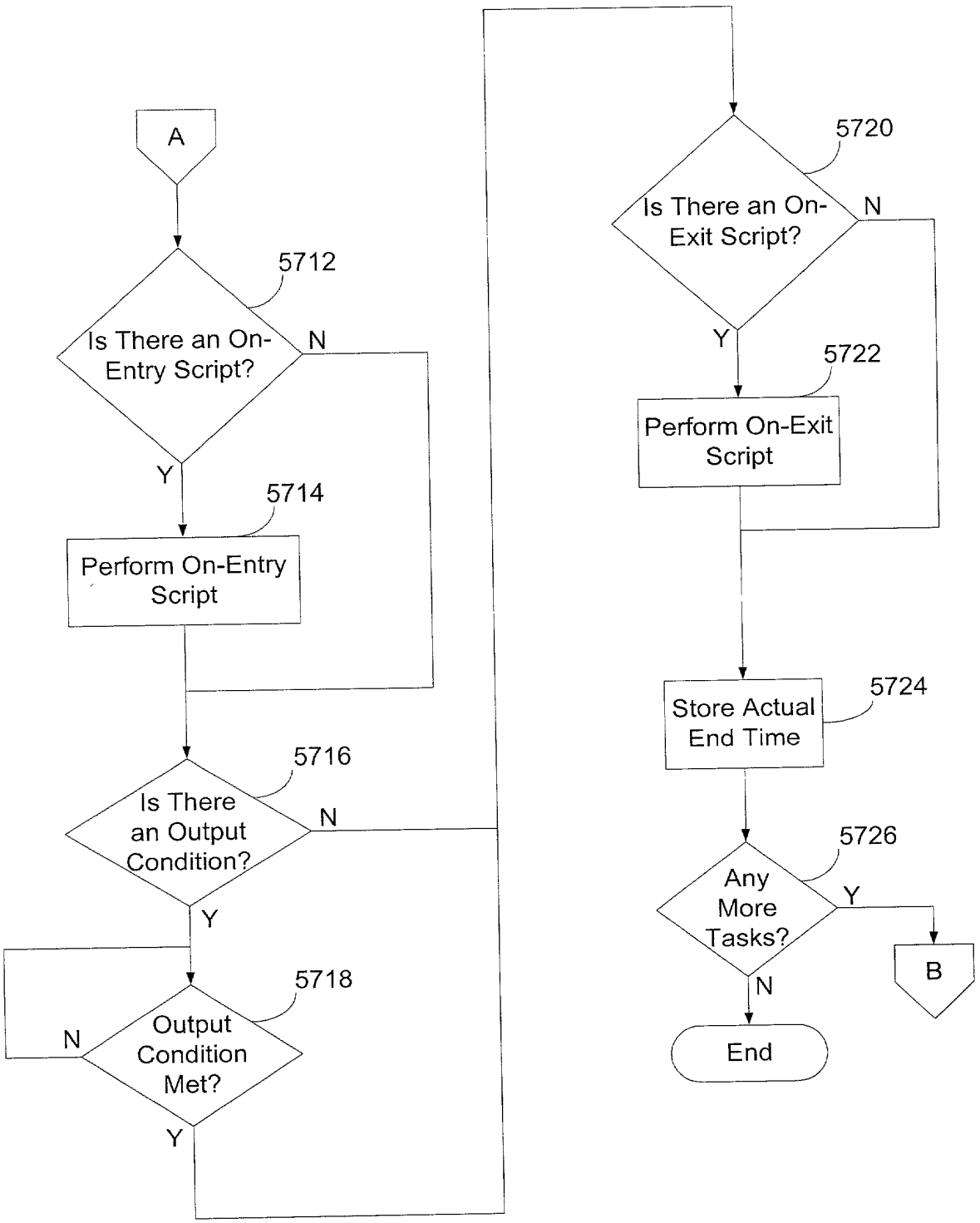

A
5712
Is There an On-Entry Script?
N
Y
5714
Perform On-Entry Script
5716
Is There an Output Condition?
N
Y
5718
Output Condition Met?
N
Y
5720
Is There an On-Exit Script?
N
Y
5722
Perform On-Exit Script
5724
Store Actual End Time
5726
Any More Tasks?
Y
N
B
End

FIG. 58

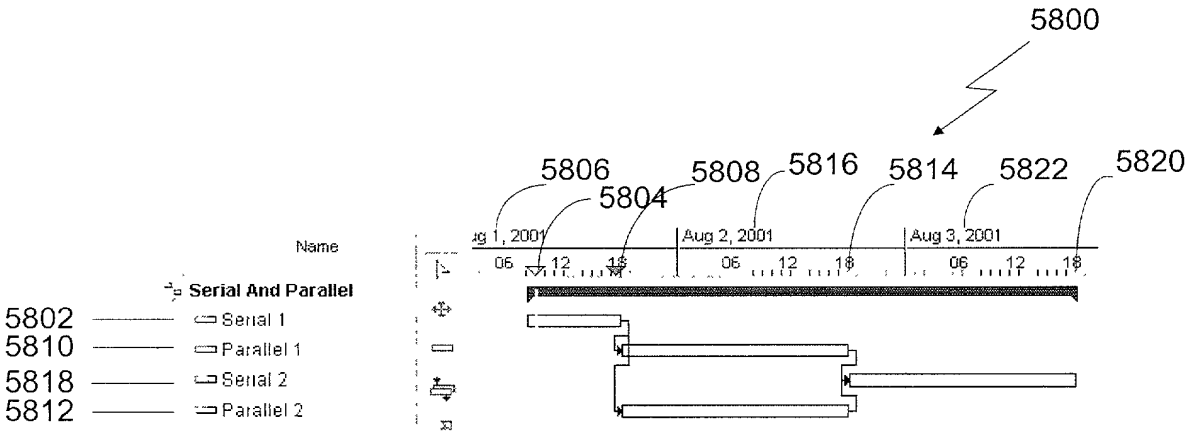
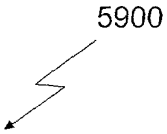

5800
5806
5808
5816
5814
5822
5820
5804
Name
Serial And Parallel
5802
Serial 1
5810
Parallel 1
5818
Serial 2
5812
Parallel 2
Aug 1, 2001
Aug 2, 2001
Aug 3, 2001
06
12
18
06
12
18
06
12
18

FIG. 59




```
<?xml version="1.0" encoding="UTF-8" ?>
- <A:plan name="Serial_And_Parallel" userid="JK" xmlns:A="workflow">
  - <A:description>
    - <![CDATA[
    No Description
      ]]>
    </A:description>
  - <A:task activityID="10" caption="Serial 1"
      link="Sample_Project_Plans/Serial_And_Parallel/Task_2.xml" name="Task_2"
      owner="Worker"
      processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
      type="general" userid="JK">
      <A:start>2001 8 1 8</A:start>
      <A:finish>2001 8 1 18</A:finish>
      <A:supertask name="Task_1" />
      <A:user>JK</A:user>
      <A:successor name="Task_3" />
      <A:successor name="Task_4" />
    </A:task>
  - <A:task activityID="1523" caption="Parallel 1"
      link="Sample_Project_Plans/Serial_And_Parallel/Task_3.xml" name="Task_3"
      owner="Worker"
      processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
      type="general" userid="JK">
      <A:start>2001 8 1 18</A:start>
      <A:finish>2001 8 2 18</A:finish>
      <A:supertask name="Task_1" />
      <A:user>JK</A:user>
      <A:predecessor name="Task_2" />
      <A:successor name="Task_5" />
    </A:task>
  - <A:task activityID="1524" caption="Parallel 2"
      link="Sample_Project_Plans/Serial_And_Parallel/Task_4.xml" name="Task_4"
      owner="Worker"
      processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
      type="general" userid="JK">
      <A:start>2001 8 1 18</A:start>
      <A:finish>2001 8 2 18</A:finish>
      <A:supertask name="Task_1" />
      <A:user>JK</A:user>
      <A:predecessor name="Task_2" />
      <A:successor name="Task_5" />
    </A:task>
  - <A:task activityID="1526" caption="Serial 2"
      link="Sample_Project_Plans/Serial_And_Parallel/Task_5.xml" name="Task_5"
      owner="Worker"
      processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
      type="general" userid="JK">
      <A:start>2001 8 2 18</A:start>
      <A:finish>2001 8 3 18</A:finish>
      <A:supertask name="Task_1" />
      <A:user>JK</A:user>
      <A:predecessor name="Task_3" />
      <A:predecessor name="Task_4" />
    </A:task>
  - <A:task activityID="NONE" caption="Serial And Parallel"
      link="Sample_Project_Plans/Serial_And_Parallel/Task_1.xml" name="Task_1"
      processURL="http://localhost:8080/webdav/ProcessGroup2/Process1.xml"
      type="general" userid="JK">
      <A:start>2001 8 1 8</A:start>
      <A:finish>2001 8 3 18</A:finish>
      <A:user>JK</A:user>
      <A:subtask name="Task_2" />
```

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FIG. 60

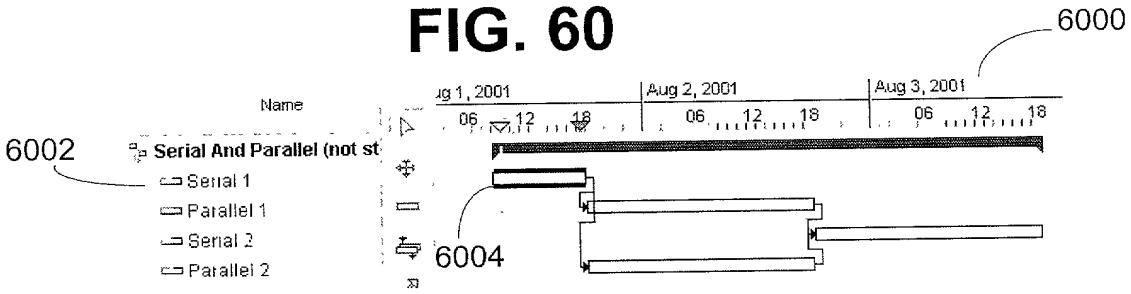


FIG. 61

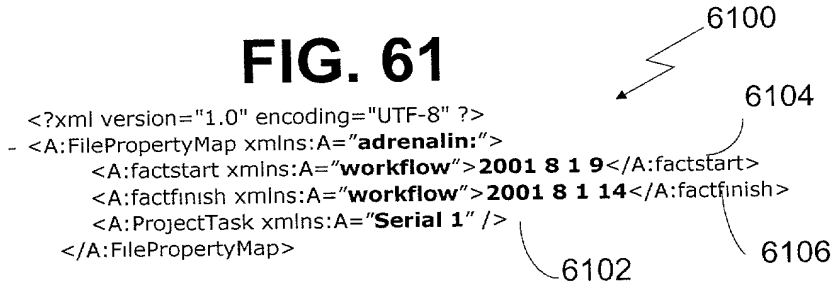


FIG. 62

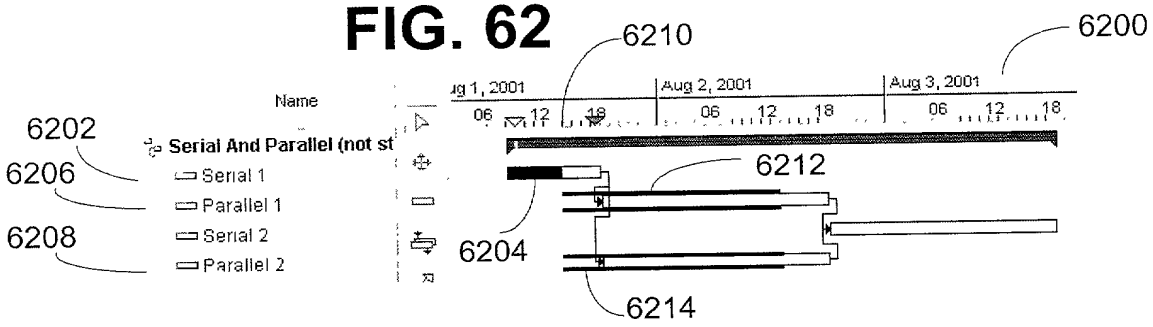


FIG. 63

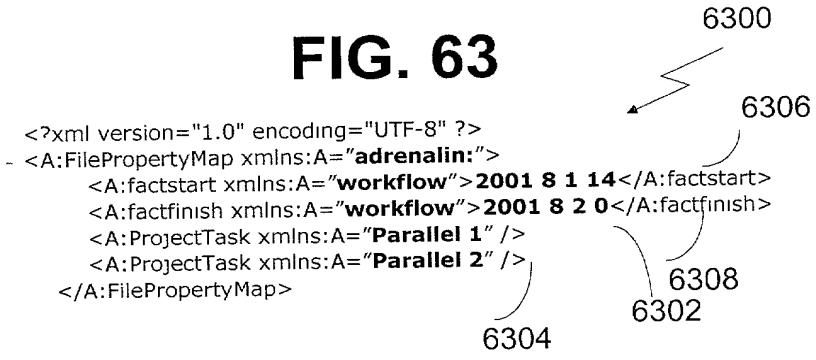


FIG. 64

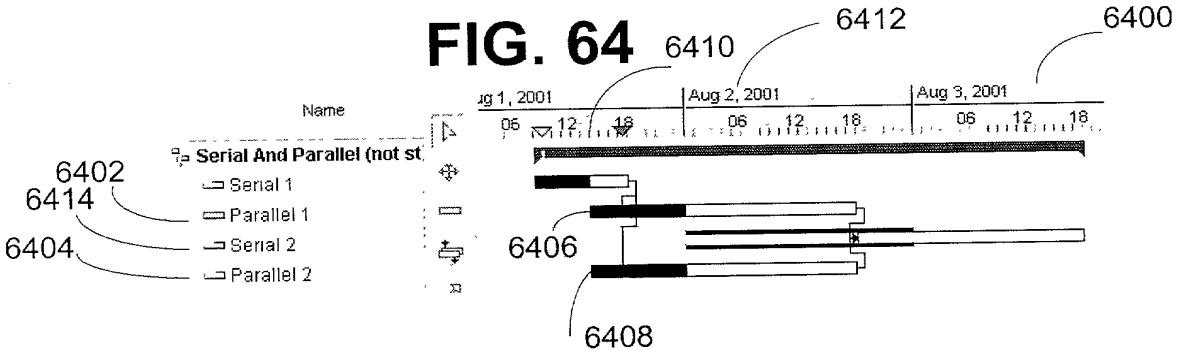


FIG. 65

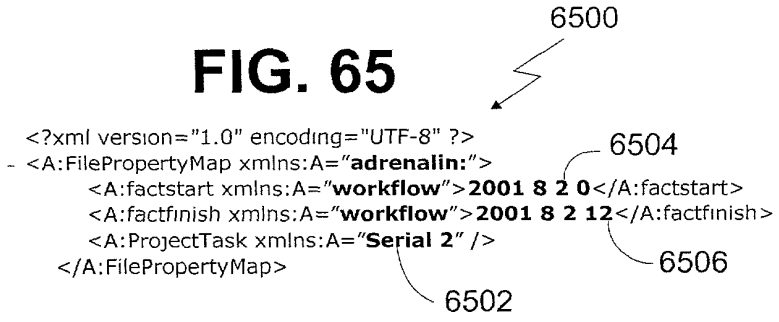
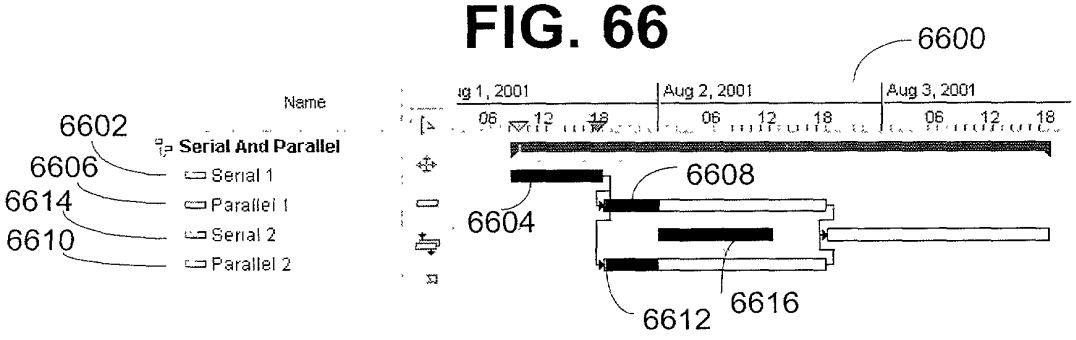

6500
<?xml version="1.0" encoding="UTF-8" ?>
- <A:FilePropertyMap xmlns:A="adrenalin:">
<A:factstart xmlns:A="workflow">2001 8 2 0</A:factstart>
<A:factfinish xmlns:A="workflow">2001 8 2 12</A:factfinish>
<A:ProjectTask xmlns:A="Serial 2" />
</A:FilePropertyMap>
6504
6506
6502

FIG. 66


6600
Name
Aug 2, 2001
Aug 3, 2001
06
12
18
6602
Serial And Parallel
6606
Serial 1
6614
Parallel 1
6610
Serial 2
Parallel 2
6604
6608
6612
6616